

CORRECTIVE ACTION PROCESS REPORT/PLAN COVER SHEET
CHAPTER 245 - STORAGE TANK AND SPILL PREVENTION ACT

Storage Tank Facility ID #: 51-33620

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Media of Concern: **Soil** **Groundwater**

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

(check all that apply to the enclosed submission)

- Remedial Action Progress Report**
- Risk Assessment Report (e.g. vapor intrusion, ecological, or human health risk calculations)**
- Site Characterization Report – Section 245.310(b)**
 - Residential Nonresidential
- Site Characterization Report – Statewide Health or Background Standard**
 - Residential Nonresidential
- Site Characterization Report – Site Specific Standard**
 - Residential Nonresidential
- Remedial Action Plan – Statewide Health or Background Standard**
 - Residential Nonresidential
- Remedial Action Plan – Site Specific Standard**
 - Residential Nonresidential
- Remedial Action Completion Report – Statewide Health or Background Standard**
 - Residential Nonresidential
- Remedial Action Completion Report – Site Specific Standard**
 - Residential Nonresidential
- Post Remediation Care Report**
- Environmental Covenant**
 - Draft Final
- Other:** _____

FINAL

Site Characterization Report - Tank Group 05

Former Philadelphia Energy Solutions Refinery
3144 West Passyunk Avenue
Philadelphia, Pennsylvania
Incident #57203

Prepared for

Philadelphia Energy Solutions Refining and Marketing LLC
111 S. Wacker Dr Suite 3000
Chicago, IL 60606

Prepared by

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December 2022

Project Number P044.001.002



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Acronyms and Abbreviations

25 PA Code	Title 25 Pennsylvania Code
ACI	AST Construction, Inc.
Act 2	Pennsylvania Land Recycling and Environmental Remediation Standards Act
Act 32	Storage Tank and Spill Prevention Act
AOI	Area of Interest
AOI 3 RIR	Remedial Investigation Report, Area of Interest 3
AOI 4 RIR	Remedial Investigation Report, Area of Interest 4
AST	aboveground storage tank
bgs	below ground surface
COC	constituents of concern
Evergreen	Evergreen Resources Group, LLC; includes Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC and Evergreen collectively referred to as “Evergreen”
Facility	former Philadelphia Energy Solutions refinery facility
ft	feet or foot
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSC	medium-specific concentrations
MTBE	methyl tert-butyl ether
Non-Res Soil DC	Non-residential Soil Direct Contact
Non-Res UA	Non-Residential Used Aquifer Groundwater
Non-Res UA S-GW	Non-residential Used Aquifer Soil-to-Groundwater
South Yard	Point Breeze Refinery South Yard
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
PID	photoionization detector
PRM	Potomac-Raritan-Magothy
the Report	Site Characterization Report
RL	reporting limit
the Site	Tank Group 05 location within the former Philadelphia Energy Solutions refinery facility
SHS	Statewide Health Standard
SSS	Site-Specific Standard
SVOC	semi-volatile organic compound
Terraphase	Terraphase Engineering, Inc.



TMB	trimethylbenzene
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
Work Plan	Aboveground Storage Tank Closure Work Plan



Certification

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

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

I hereby attest that, as a Professional Geologist licensed in the Commonwealth of Pennsylvania, I am familiar with, and have reviewed and/or prepared the interpretation of the geology and hydrogeology presented in the attached report entitled, *Site Characterization Report – Tank Group 05, Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated December 2022.

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



Alexander J. Strohl, PG
Senior Staff Geologist



December 23, 2022

Date

1 Introduction

Terraphase Engineering, Inc. (Terraphase) has prepared this *Site Characterization Report* (Report), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), to detail the results of the Site Assessment and Site Characterization activities at Tank Group 05 (the Site) which is located within the Former Philadelphia Energy Solutions refinery facility (Facility). The Facility, which is undergoing closure activities in preparation for redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania (**Figure 1**). Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) by both PESRM and Evergreen Resources Group, LLC (Evergreen)¹ in accordance with the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement.

The Site Assessment and Site Characterization activities described in this Report were performed in accordance with the applicable provisions of The Storage Tank and Spill Prevention Act (Act 32), Title 25 of the Pennsylvania Code (25 PA Code) Chapter 245 (Subchapter D), and Terraphase’s (2021) *Aboveground Storage Tank Closure Work Plan* (Work Plan), which was approved by the Pennsylvania Department of Environmental Protection (PADEP) on April 23, 2021. As discussed in the Work Plan, closure of the above ground storage tanks (ASTs) under Act 32 is being pursued through a group closure process, in which ASTs in the same general area (e.g., tank farm) have been demolished, removed, investigated, and evaluated at about the same time. Demolition of the tanks has been proceeding in phases from the north to the south with eight Tank Groups in all.

Tank Group 05 (**Figure 2**) is located within a larger area of the Facility referred to as the Point Breeze Refinery South Yard (South Yard). Evergreen is currently engaged in characterization and remediation work at the Facility under the Pennsylvania One Cleanup Program under the oversight of the PADEP and the United States Environmental Protection Agency (USEPA) (eFACTS PF No. 778374 and 778376). In its associated documentation, Evergreen has identified the Tank Group 05 portions of the South Yard as Areas of Interest (AOI) 3 and AOI 4. The specific ASTs addressed in this Report are shown on **Figure 3** and listed in **Table 1**.

This Report was prepared in accordance with Act 32 and 25 PA Code Chapter 245 (Subchapter D) and provides a summary of the Site Assessment and Site Characterization activities that were performed following the identification of potential releases to the environment during the demolition and removal of the Tank Group 05 ASTs. It also demonstrates that adequate characterization has been performed to evaluate whether remedial action is warranted and indicates whether PESRM will pursue closure under the Statewide Health Standard (SHS), the Site-Specific Standard (SSS) or a combination of these standards.

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



Section 2 provides the site setting and includes:

- A description of the Site and operational/usage history of the ASTs;
- Information regarding site topography, geology, and hydrogeology;
- A summary of known past releases to the environment in the area and subsequent investigation and remedial activities to address these releases; and
- A summary of current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site.

Section 3 discusses the standards selected for the attainment demonstration. Section 4 discusses the tank infrastructure and removal. Sections 5 and 6 discuss the Site Assessment and Site Characterization, respectively. A summary of the Report and its conclusions are presented in Section 7.



2 Site Setting

The Facility, a former 1,300-acre refinery, is currently undergoing decommissioning to support redevelopment. The Site² is 32 acres in size and is located within the Point Breeze South Yard, an area that is also referred to as AOI 3 and AOI 4 by Evergreen as part of their One Cleanup Program effort. The Site is located south of Hartranft Street and north of Penrose Avenue, between South 26th Street and Schuylkill Avenue. Prior to demolition, Tank Group 05 consisted of two separate areas containing tanks located in the southern portion of the South Yard. The areas are separated by facility buildings, large piping structures, parking lots, and plant access roadways. Except for the asphalt roadways and parking areas that pass through the portions of Tank Group 05, and the tank foundations themselves, the area is not covered by hardscape.

The ASTs addressed in this Report are listed in **Table 1**. Six other ASTs, not subject to this closure effort, were previously located within Tank Group 05.

Figure 3 provides a layout of Tank Group 05.

2.1 Operational History/Usage of the Tanks

The Facility operated as a petroleum refinery between 1860 and 2019. The refinery ceased operations in 2019. The demolition and decommissioning of the subject ASTs began in November 2021. Prior to demolition, the primary products held within these tanks were: 15MV2, Distillate (PB 824, PB 253, and PB 825), Untreated Distillate (PB 835 and PB 836), Light Cycle Oil (PB 821 and PB 822), Limited Slip Differential (PB 823), and Vacuum Gas Oil (PB 833). Additional details regarding the size, contents, and construction of the tanks are provided in **Table 1**.

2.2 Topography

Topography at the Site is generally flat except for containment berms constructed around the tank areas to provide containment in the event of a release. Regional topography slopes gently to the west towards the Schuylkill River, the nearest water body to the Site. The ground surface elevation at the Site is approximately 15 feet (ft) above mean sea level³.

2.3 Regional Geology and Hydrogeology

The Facility is located within the Atlantic Coastal Plain Physiographic Province of Pennsylvania. The Atlantic Coastal Plain is a physiographic province that is defined as having a flat topography, underlain by unconsolidated sediments that thicken to the southeast. The Coastal Plain deposits are sand, gravel, silt, and clay which drape over crystalline igneous and metamorphic rocks. In general, the resulting sediments are approximately 250 ft thick along the Delaware River. These sediments unconformably

² Tank Group 05 consists of two tank farms referred to by the Facility as the No. 4 and No. 5 Tank Farms.

³ North American Vertical Datum of 1988 (NAVD 88).



overlie much older, very complexly deformed rocks of the Piedmont physiographic province. The Coastal Plain deposits in the vicinity of the Facility consist of anthropogenic fill underlain by quaternary deposits.

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

The sedimentary record near the Site consists of a complex series of water-bearing sand units which can comprise one or more hydrostatic units. Historical investigations conducted at the Facility have identified two saturated zones, including an unconfined shallow groundwater unit (occurring within the Holocene and Trenton Gravel deposits) and a deep groundwater unit known as the Farrington Sand, which is part of the PRM aquifer system. The deeper groundwater unit is separated by a clay unit; as such, the deeper groundwater has been classified as a semi-confined aquifer. Groundwater is first encountered generally at the Facility at a depth approximately 15 to 25 ft below ground surface (bgs) (Stantec 2017). **Appendix A** provides select figures from the *Remedial Investigation Report, Area of Interest 3* (AOI 3 RIR; Langan 2017) and *Remedial Investigation Report, Area of Interest 4* (AOI 4 RIR; Stantec 2017) for reference including, Figure 5 from the AOI 3 RIR and Figure 2-8 From the AOI 4 RIR which provide detailed cross sections of the area.

2.4 Local Geology and Hydrogeology

During the Site Assessment and Site Characterization, soil at the Site was primarily investigated within the upper 5 ft, although certain Site Characterization borings were advanced to a maximum depth of 15 ft. Anthropogenic fill up to 5 ft thick was observed in soil cores collected from most of the soil borings installed in Tank Group 05. Soil beneath the fill layer generally consists of brown to brownish red sand, clay, and silt.

Historically, unconfined aquifer groundwater has been first encountered in Tank Group 05 at a depth of approximately 15 to 25 ft bgs (Langan 2017). During site characterization activities in the vicinity of PB 253, groundwater was encountered between approximately 12 and 25 ft bgs. Perched groundwater has also been noted to be present in the anthropogenic fill layers throughout the Facility, causing mounding and irregular depressions, including in the area east of PB 253. Wet soil at depths shallower than the phreatic surface of the unconfined aquifer was identified during monitoring well installation east of PB 253 and which Evergreen has attributed to a leaky underground, high-pressure water line, causing a localized perched condition (Stantec 2017).

Groundwater has historically been interpreted to flow to the south/southeast toward the convergence of the Delaware and Schuylkill Rivers. Based on Figure 10 of the AOI 3 RIR (Langan 2017) and Figure 5-4



of the AOI 4 RIR (Stantec 2017) included in **Appendix A**, unconfined aquifer groundwater flow within Tank Group 05 appears to be directed toward a groundwater depression along the Tank Group's southeastern boundary with Penrose Avenue.

2.5 Known Past Releases to the Environment

The presence of chemicals in soil above applicable medium-specific concentrations (MSCs) in the Tank Group 05 area may be associated with recent or historical releases from the ASTs or other potential sources unrelated to the ASTs. This section provides a discussion of the past releases and potential other sources of contamination.

The AOI 3 RIR (Langan 2017) and AOI 4 RIR (Stantec 2017), prepared on behalf of Evergreen, note historical investigations relating to past releases of petroleum products in the vicinity of Tank Group 05. In some cases, these releases have resulted in contamination to groundwater (including the identification of light non-aqueous phase liquid [LNAPL]) that is present or that has migrated to within the bounds of Tank Group 05. These past releases are summarized in Section 2.6.2.

The AOI 3 and AOI 4 RIR identified four potential historical releases from ASTs in Tank Group 05 (Incident Nos. 45963 [PB 833], 45969 [PB 835], 45961 [PB 823], and 45966 [PB 253]). An additional release in the vicinity of PB 253 was identified recently during Site Characterization and is not believed to be associated with PB 253. This release will be addressed under Act 2.

2.6 Pre-existing Contamination

Environmental sampling has been conducted at the Facility since as early as 1988. This section provides a summary of historical sampling results in and around Tank Group 05.

2.6.1 Soil

Historical sampling in Tank Group 05 has included surface (0-2 ft bgs) and subsurface (> 2 ft bgs) soil samples which have been analyzed for specific volatile organic compounds (VOCs), SVOCs, and metals. As discussed in Section 1.5 of the AOI 3 and AOI 4 RIRs, the list of constituents of concern (COC) which are included in sampling performed by Evergreen as part of the site-wide approach for the Facility under the One Cleanup Program, are referred to as the Evergreen Petroleum Short List and Comprehensive List. The Comprehensive List, which encompasses the Petroleum Short List, is shown on **Table 2**.

As presented on **Table 3**, a comparison of the maximum detected concentrations of COCs in historical samples to applicable SHS MSCs and screening levels⁴ indicates the following:

⁴ Based upon current and reasonably expected future land and groundwater use, the applicable MSCs included Non-residential Soil Direct Contact MSCs (for surface and subsurface soil) and Non-residential Used Aquifer (total dissolved solids ≤2500) Soil-to-Groundwater Protection MSCs.



- Lead⁵ has been detected historically in surface soil in the area at concentrations greater than the Non-residential Soil Direct Contact (Non-Res Soil DC) MSC for surface soil;
- No constituents have been detected historically in subsurface soil in the area at concentrations greater than the Non-Res Soil DC MSCs for subsurface soil;
- Benzene and lead have been detected historically in surface soil in the area at concentrations greater than the Non-residential Used Aquifer Soil-to-Groundwater (Non-Res UA S-GW) MSCs; and
- No constituents have been detected historically in subsurface soil in the area at concentrations greater than the Non-Res UA S-GW MSCs.

Table 3 summarizes additional information for these historical soil sampling results including frequency of detections, range of detected concentrations, and ratios of the maximum detected concentrations to the MSCs. **Figure 4a and 4b** present the spatial distribution of historical surface and subsurface soil concentrations, respectively, above these applicable MSCs. **Appendix B** provides tables of these historical soil sampling results.

Historical sampling has identified concentrations of COCs exceeding Non-Res MSCs in surface soil in the vicinity of previously closed tanks PB 258 (benzene) and PB 831 (lead) and currently assessed tank PB 833 (lead). Historical sampling has not identified concentrations of COCs exceeding Non-Res MSCs in subsurface soil in Tank Group 05.

The identification of concentrations greater than MSCs does not, on its own, indicate that an unacceptable risk to human health or the environment exists. Rather, concentrations greater than MSCs indicate that additional evaluation is warranted to (1) determine if interim measures are necessary to abate an imminent hazard; (2) determine whether additional site characterization is needed to confirm the sources of contamination, determine the regulated substances involved and the extent of migration of those regulated substances in environmental media, and evaluate the fate and transport of these substances, if needed; (3) select a remediation standard; (4) perform a site-specific risk assessment, if desired; and (5) as needed, provide sufficient information to allow for the development of a remedial action plan or remedy design.

With consideration for the closure of the Tank Group 05 ASTs, these historical sampling results have been considered in evaluating whether the soil sampling data generated during the Site Assessment and Site Characterization indicate evidence of new releases to the environment from the tanks, or whether the nature and extent of contamination identified during the Site Assessment/Site Characterization is consistent with known historical soil quality.

⁵ In 2015 Langan, on behalf of Evergreen, submitted a Human Health Risk Assessment Report to establish a SSS for lead in soil at the Facility, the Belmont Terminal, and the SPMT Marcus Hook Industrial Complex. The Human Health Risk Assessment was approved by the PADEP in a letter dated May 6, 2015, establishing a SSS of 2,240 mg/kg for lead in soil which Evergreen is using to evaluate direct contact exposure to lead in soil as part of completing their remediation program under the 2012 Buyer-Seller Agreement.



2.6.2 Groundwater

More than 30 groundwater monitoring or recovery wells have been installed within and near Tank Group 05 as part of historical environmental sampling at the Facility. As discussed in the AOI 3, AOI 4, and the Site-wide Fate and Transport (Stantec 2022) RIRs, of the comprehensive list of site-related COCs identified in groundwater, benzene and methyl tert-butyl ether (MTBE) were chosen as the primary chemicals (qualitative proxies) for other COCs because of their water solubility, potential to be mobile in groundwater, and their persistence in groundwater at and near the Facility. **Figure 4c** depicts the wells in Tank Group 05 with identified historical dissolved phase groundwater contamination at concentrations greater than Non-Res US GW MSCs and/or LNAPL.

MTBE was phased out of use in the early 2000s and as of 2005, MTBE has not been used in significant quantities as an additive to gasoline. As a result, the presence of MTBE in soil and groundwater can help to identify contamination that is associated with historical releases (e.g., pre-2007).

Figures from the AOI 3 and AOI 4 RIR show the distribution of benzene and other COCs in groundwater near Tank Group 05. For expediency, copies of Figures 6-1, and 10-1 through 10-7 of the AOI 4 RIR and Figures 14 and 16 of the AOI 3 RIR are included as **Appendix A**. Each has been amended to identify the location of Tank Group 05.

As shown on Figures 10-1 through 10-6 of the AOI 4 RIR, a dissolved-phase contamination plume exists beneath the eastern portion of Tank Group 05. As presented in **Appendix A**, as a result of remedial action and natural attenuation, the concentrations of benzene and MTBE and the aerial extent of elevated concentrations in unconfined groundwater below Tank Group 05 have decreased since 2004/2005.

As shown on Figure 14 of the AOI 3 RIR, fewer wells are located in the western portion of Tank Group 05. The most recent sampling of these wells has indicated limited areas of dissolved phase groundwater contamination in the unconfined aquifer and LNAPL.

Since as early as 1995, LNAPL plumes have also been identified at and near Tank Group 05 as shown on Figure 6-1 of the AOI 4 RIR and Figure 16 of the AOI 3 RIR. LNAPL has consisted of light, middle, and heavy petroleum distillates.

As part of remedial action, four LNAPL recovery systems have been installed by Evergreen/Sunoco in the vicinity Tank Group 05. The Penrose System was operated until March 2020 along the southeastern boundary of Tank Group 05. The system was a total fluids recovery system implemented to extract impacted groundwater and LNAPL from a series of recovery wells. The system discharged recovered LNAPL to a holding tank and remediated groundwater to a nearby municipal sewer line.

According to the AOI 4 *Remedial Investigation Report Addendum* (AOI 4 RIR Addendum; Stantec 2021), the prevailing flow direction in this area is inferred to be south/southeast across the AOI 4 boundary, generally following topography. Adjacent to (east of) PB 253, there is a persistent area of groundwater mounding near well S-233 that is thought to be caused by a leaky underground, high-pressure water line. Benzene concentrations in these existing wells range from 0.58 to 14.2 mg/L, naphthalene concentrations range from 0.01 to 0.30 mg/L, and MTBE concentrations range from 0.18 to 5.2 mg/L.



The S-30, S-36, and RW-2 remediation systems were designed to recover localized LNAPL through recovery pumps. All three systems were shut down between 2009 and 2010. The S-30 remediation system was re-activated in 2018 following rehabilitation but was shut down again in September 2021 in advance of planned demolition activities in the area.

Groundwater contamination in the lower aquifer has been identified in Tank Group 05. Concentrations of benzene, lead, and MTBE have occasionally been identified above Non-residential MSCs in the lower aquifer monitoring wells in the vicinity of Tank Group 05.

These historical sampling results have been considered in evaluating Site Assessment and Site Characterization data for Tank Group 05.



3 Selection of Standards

This section discusses planned land and groundwater use at the Site. It also discusses the standard selected by PESRM for Tank Group 05 and which MSCs have been identified as applicable based upon current and reasonably anticipated future land and groundwater use.

3.1 Land and Groundwater Use

As noted in the parcel map included in **Appendix C** and as captured in the conceptual imagery developed by Hilco Redevelopment Partners (<https://www.thebellwetherdistrict.com/>), the area encompassing Tank Group 05 is being redeveloped into a state-of-the-art, multimodal industrial park and life sciences campus with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. Current and reasonably anticipated future land use in the area of Tank Group 05 is non-residential. Following redevelopment, much of the area is also expected to be covered by hardscape (e.g., building pads, drive aisles, parking lots, roadways) or other features that will generally function as barriers to direct contact exposure.

Vapor intrusion is not considered in the evaluation of Site Characterization at this time⁶. As part of its redevelopment planning, PESRM plans to assess potential vapor intrusion exposure in areas where occupied buildings are planned. This future assessment will evaluate whether conditions pose an unacceptable risk to future building occupants such that risk management action (e.g., remediation, vapor mitigation) is warranted. Pending the results of this forthcoming vapor intrusion evaluation, PESRM may elect to manage this exposure pathway through the Site-Specific Standard (SSS) via pathway elimination.

The unconfined aquifer is not used for a municipal or nearby communal potable water supply and future potable use of the unconfined aquifer is not reasonably expected, as documented by Evergreen (Stantec 2021 *AOI 9 Second Remedial Investigation Report Addendum* and Evergreen 2021 *Public Involvement Remedial Investigation Report Response Letter to PADEP*).

3.2 Selected Standard

PESRM has chosen to select the non-residential SHS to attain closure for COCs identified in soil and groundwater in Tank Group 05, as required by 25 PA Code §245.303(d) to overcome the presumption of liability under Act 32.

⁶ As requested by PADEP, this Report identifies soil sampling locations where COC concentrations are greater than PADEP generic default soil vapor intrusion screening levels for nonresidential exposure.



4 Tank Infrastructure and Removal

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

The demolition of the following ASTs began in November 2021 and was completed in April 2022:

- PB 824 (PADEP No. 009A)
- PB 835 (PADEP No. 010A)
- PB 253 (PADEP No. 042A)
- PB 821 (PADEP No. 045A)
- PB 822 (PADEP No. 046A)
- PB 823 (PADEP No. 047A)
- PB 825 (PADEP No. 048A)
- PB 833 (PADEP No. 051A)
- PB 836 (PADEP No. 052A)

During the removal, it was determined that PB 824, PB 835, PB 821, PB 823, PB 825, PB 833, and PB 836 had double bottoms. PESRM retained ENTACT to remove the double bottoms at the seven tanks. Removal was completed April 2022, overseen by ACI.

On behalf of PESRM, JD2 Environmental, Inc. and ACI submitted to PADEP the required tank registration amendments, copies of which are provided as **Appendix D**.

The Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) were submitted to the PADEP on September 26, 2022, and are included as **Appendix E**.



5 Site Assessment

This section discusses the sample collection methods used and sample analyses performed during the Site Assessment. The sampling was completed by Ransom Consulting, LLC and their subcontractor TPI Environmental, LLC (TPI).

As discussed in the Work Plan, when no evidence of a release to the environment was identified during Tank Group 05 AST removal, ASTs were subject to Site Assessment sampling using a grid-based approach with additional biased samples toward the locations of pipe connections or other key infrastructure. Sampling was conducted during multiple mobilizations as the tanks were being demolished and the ground became available for sampling. The first mobilization was on December 7, 2021, and the last mobilization was completed on July 7, 2022, after the removal of double bottoms.

In total, 158 soil borings were installed and 164 soil samples were collected during the Site Assessment. **Figures 5a** and **5b** show the location of each of the Site Assessment soil borings.

5.1.1 Sample Collection Methods

Prior to the initiation of the sampling activities, the Pennsylvania One Call System (811 Dig Safe) was contacted to identify underground utilities at the Site. In addition, a review of available information provided by facility representatives regarding the presence/absence of underground utilities was used in the selection of sampling locations. Finally, a private locate was performed using geophysical and electromagnetic techniques to identify potential utilities or subsurface structures at proposed drilling locations.

Soil borings were completed using direct-push (i.e., Geoprobe) drilling or hand auger methods and advanced through the top 5 ft of soil. Continuous soil cores were collected, and field screened using a photoionization detector (PID) to identify potentially impacted zones. Soil sampling intervals were selected based on the results of field screening (i.e., staining, odors, and elevated PID readings). Where potentially impacted materials were not encountered, discrete samples were collected at a depth of 3.0-3.5 ft bgs consistent with the Confirmatory Sampling Protocol detailed in PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*. The sampling intervals selected were targeted towards the interval indicating the greatest likelihood of contamination based upon field screening and visual observations. Where no evidence of contamination was observed, soil from 3-3.5 ft bgs was sampled as proposed. The approach is consistent with PADEP guidance as their language requires sampling “at least **one foot below** underground product piping, **two feet below** product dispensers, remote fills or containment structures and aboveground product lines for ASTs, and **three feet below** the tank.” Where fill was observed, samples of the fill were collected if it consisted of soil or soil-like material. Groundwater was not encountered during the Site Assessment.

Appendix F provides copies of the field notes and boring logs that describe the soil cores.



5.1.2 Sample Analyses

The analysis selected for each soil sample was based on the AST contents as prescribed by PADEP's Short List of Petroleum Products inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [January 2019]). As shown on **Table 1**, for these nine ASTs, analytes included one or a combination of the following short lists, based on historical tank contents:

- **Short List 1.** *Leaded Gasoline, Aviation Gasoline and Jet Fuel:* benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-TMB, 1,3,5-TMB, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2.** *Unleaded Gasoline:* benzene, toluene, ethyl benzene, xylenes (total), cumene, MTBE, naphthalene, 1,2,4-trimethyl benzene (1,2,4-TMB), and 1,3,5-trimethyl benzene (1,3,5-TMB).
- **Short List 3.** *Kerosene, Fuel Oil No. 1:* benzene, toluene, ethyl benzene, cumene, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- **Short List 4.** *Diesel Fuel and Fuel Oil No. 2:* benzene, toluene, ethyl benzene, cumene, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- **Short List 5.** *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids:* benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene (B[a]A), chrysene, benzo(b)fluoranthene (B[b]F), benzo(a)pyrene (B[a]P), and benzo(g,h,i)perylene.

VOCs were analyzed via USEPA Method 8260B. Samples for SVOCs were analyzed via Method 8270C. Samples for lead were analyzed via USEPA Method 6010B.

Laboratory analytical services were provided by Alpha Analytical, Inc. of Westborough, Massachusetts, which is a PADEP-certified laboratory. Soil samples submitted for analyses were placed directly into laboratory provided glassware and stored on ice in a cooler under appropriate chain of custody protocol.

5.1.3 Sample Results

Soil sampling results from the Site Assessment were compared to the following Non-residential MSCs⁷ to help identify potential releases to the environment from the ASTs and their associated piping:

- Non-Res Soil DC MSCs for surface and subsurface soil
- Non-Res UA S-GW MSCs

⁷ As described in Section 5.1.1, soil sampling intervals were based on the results of field screening (i.e., staining, odors, and elevated PID readings). Where potentially impacted materials were not encountered, discrete samples were collected from native soil at a depth of 3.0-3.5 ft bgs, in accordance with PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*. Since only subsurface (> 2 ft bgs) soil samples were collected from some locations during the Site Assessment, the comparison of the resulting concentrations to MSCs conservatively disregarded the surface/subsurface soil designation reflected in the Non-residential Soil DC MSCs (i.e., results were compared to the Non-Res DC MSCs for surface soil). This approach was used to support Site Characterization decision-making and ensure that adequate characterization was performed.



Figures 5a and 5b identify the Site Assessment sampling locations where COCs were identified at concentrations greater than the applicable MSCs. The screening evaluation identified two COCs in soil at concentrations greater than these applicable MSCs (i.e., benzene and naphthalene).

PB 824

None of the Site Assessment soil samples collected in proximity to PB 824 exhibited concentrations greater than the applicable MSCs.

PB 835

None of the Site Assessment soil samples collected in proximity to PB 835 exhibited concentrations greater than the applicable MSCs.

PB 253

Two samples (PB-253-01-SS01 and PB-253-02-SS01) collected in proximity to PB 253 and its associated piping exhibited concentrations greater than one or more applicable MSCs. The COCs identified are benzene and naphthalene.

PB 821

None of the Site Assessment soil samples collected in proximity to PB 821 exhibited concentrations greater than the applicable MSCs.

PB 822

None of the Site Assessment soil samples collected in proximity to PB 822 exhibited concentrations greater than the applicable MSCs.

PB 823

None of the Site Assessment soil samples collected in proximity to PB 823 exhibited concentrations greater than the applicable MSCs.

PB 825

None of the Site Assessment soil samples collected in proximity to PB 825 exhibited concentrations greater than the applicable MSCs.

PB 833

None of the Site Assessment soil samples collected in proximity to PB 833 exhibited concentrations greater than the applicable MSCs.

PB 836

None of the Site Assessment soil samples collected in proximity to PB 836 exhibited concentrations greater than the applicable MSCs.



Based upon the results, no evidence of a release from PB 824, PB 835, PB 821, PB 822, PB 823, PB 825, PB 833, and PB 836 was identified. The Site Assessment outcome for PB 824, PB 835, PB 821, PB 822, PB 823, PB 825, PB 833, and PB 836 is “No Obvious Contamination – Sample Results Meet Action Levels”.

Based upon the results of soil samples collected during the Site Assessment and a comparison to generic MSCs, a potential release of regulated substances to the environment from PB 253 was identified. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Action Levels”.⁸

The identification of concentrations in soil above applicable MSCs resulted in notifying PADEP of potential releases to the environment on January 3, 2022. PADEP assigned the releases in Tank Group 05 to Incident No. 57203. Copies of the notification documents are included in **Appendix G**.

Table 4 lists the COCs (if any) identified in soil in the vicinity of each tank in Tank Group 05 during Site Assessment sampling. **Appendix H** provides the soil analytical results from the Site Assessment. Copies of the laboratory reports are included as **Appendix I**.

⁸ As explained in this Report, additional sampling and investigation conducted during Site Characterization indicated that these results are not attributed to releases from PB 253.



6 Site Characterization

This section discusses how the Site Characterization plan was developed, the methods used during the sampling, and the evaluation of the results following characterization.

6.1 Site Characterization Plan

Based on the results of Site Assessment sampling in Tank Group 05 (Section 5), a Site Characterization plan was developed. The objective of the Site Characterization was to delineate the horizontal and vertical extent of the potential releases until sufficient data were available to determine the need for interim or remedial measures.

6.2 Site Characterization Sampling

The Site Characterization scope included the installation of an additional 10 soil borings and the collection of an additional 39 soil samples. Several samples were collected at shallower (0-0.5 ft bgs) and deeper soil intervals (e.g., 4-4.5 ft bgs, 4.5-5 ft bgs, 6-6.5 ft bgs, 14-14.5 ft bgs) to vertically characterize the extent of COC concentrations in soil. The sample collection protocols and the sampling analyses used during the Site Characterization were consistent with those used during the Site Assessment except that the sampling intervals and analytes were selected to achieve delineation of the exceedances identified during the Site Assessment, where needed and practicable. The sampling was completed by Ransom Consulting, LLC and their subcontractor TPI.

Releases to soil from the ASTs and associated soil contamination would be confined to the secondary containment berms. As a result, the horizontal extent of soil contamination associated with the ASTs is limited to an extent no greater than the berms (except for where piping traverses through the berms). Where space existed between locations of identified soil contamination and the berms, horizontal soil sampling was considered to delineate soil contamination horizontally to within the bermed containment areas. The Site Assessment sampling methodology included PID field screening of soil during the installation of the soil borings. This allowed the field team to identify the interval with the greatest potential VOC concentrations. If samples were collected at a depth greater than 2 ft bgs, it was either because PID readings were greater than those observed from 0-2 ft bgs, or PID readings indicated no evidence of VOCs and samples were then collected from 3.0-3.5 ft bgs per PADEP (2017). For these situations, shallow soil sampling for VOCs was unnecessary. Instead, the Site Characterization conservatively assumes that the concentrations observed in these subsurface samples also exist at the surface (i.e., 0-2 ft bgs). This logic is not used where SVOCs or lead was identified in subsurface soil samples at concentrations greater than MSCs – for these constituents, shallow soil samples were collected during site characterization to assess conditions in surface soil at the locations where subsurface soil samples exceeded MSCs. Where subsurface soil sampling indicated concentrations greater than soil-to-groundwater protection MSCs, deeper soil samples were collected from the location exhibiting the highest concentration at each tank. Samples were collected from two zones with one closer to the assumed unconfined aquifer depth. Historical soil sampling results were also used to help support Site Characterization decision-making.



Site Characterization soil sampling was conducted between July 25, 2022, and August 9, 2022. **Figures 5a** and **5b** show the location of each of the Site Characterization soil borings. **Appendix F** contains copies of the field notes that describe the soil cores. In addition to soil characterization, a groundwater monitoring well (TG05-MW-01) was installed in the vicinity of tank PB 253. The well was installed to fully characterize the extent of contamination identified in the vicinity of the tank. Additional details about the location and purpose of the well are detailed in Section 6.3.2.

Ransom and their subcontractor TPI installed the well using 4 ½-inch hollow-stem auger rotary drilling methods to 30-foot bgs. The monitoring well was constructed with 15-feet of 2-inch diameter Schedule 40 PVC well screen with 0.010-inch slotted screen. A #1 sand filter pack was installed around the screen to 2-feet above the screened interval. A #00 fine sand seal was placed above the #1 filter pack and the remaining annular space was filled with a cement/bentonite grout. The monitoring well was developed by over pumping the well to remove multiple well volumes from the well with a submersible pump. The submersible pump was surged up and down along the well screen to loosen sediment from the formation into the well. Well development continued until the developed water was clear and free of sediment. The monitoring well was completed on September 26, 2022. All water produced by development was containerized and treated at the on-site wastewater treatment plant.

Ransom conducted two groundwater sampling events via low-flow groundwater sampling techniques. The initial event was conducted 2 weeks following well development, on October 12, 2022 and the second event was conducted approximately 1 month later, on November 16, 2022.

Prior to groundwater sample collection, Ransom collected groundwater level and LNAPL thickness measurements from well TG05-MW-01 and existing monitoring wells RW-702, RW-703, RW-705, RW-707, RW-708, RW-710, RW-711, RW-712, RW-713, RW-714, RW-715, RW-716, RW-717, S-124, S-221, S-222, S-223, S-233, S-235, S-236, S-237, S-239, S-240, S-241, S-245, S-246, S-329, and S-408 using an electronic oil/water interface probe. The results of the gauging are provided in **Table 5**. Groundwater samples were collected from TG05-MW-01 and pre-existing monitoring well S-233. This well was selected as it represents the nearest existing unconfined monitoring well to the area of PB-253.

The groundwater samples collected from the wells were analyzed for Shortlist 1-5 parameters. Where collected, LNAPL characterization samples were analyzed for PIANO VOCs (8260B, VOCs by GC/MS), PAHs/Biomarkers (8270D-SIM), Organic Lead (8270D-SIM), Density (ASTM D1475), and Saturated Hydrocarbons (8015D by GC-FID).

6.3 Site Characterization Results

Table 6 presents a comparison of the maximum detected COC surface soil and subsurface soil concentrations across the Site to the applicable MSCs and reflects both Site Assessment and Site Characterization sampling results. **Table 7** presents the groundwater sample results from well TG05-MW-01 and compares the concentrations to the Non-Res UA GW MSCs.

With consideration for surface and subsurface soil, a comparison to applicable MSCs indicates the following:



Surface Soil

- Non-Res Soil DC Exceedances: none
- Non-Res UA S-GW Exceedances: benzene

Subsurface Soil

- Non-Res Soil DC Exceedances: benzene
- Non-Res UA S-GW Exceedances: benzene and naphthalene

Groundwater

- Non-Res UA GW MSCs Exceedances: benzene, ethyl benzene, toluene, 1,2,4-TMB, MTBE, xylenes, and naphthalene

The spatial distribution of these compounds in soil and their concentrations relative to MSCs are shown on **Figure 5a** and **5b**. **Figures 6a** and **6b** show the spatial distribution of benzene relative to its respective MSCs in surface and subsurface soil, respectively. **Figure 7** shows the spatial distribution of naphthalene relative to its respective MSCs in subsurface soil (naphthalene was not detected in surface soil at concentrations greater than applicable MSCs). **Figure 8** shows the spatial distribution of benzene, ethyl benzene, MTBE, toluene, 1,2,4-TMB, xylenes, and naphthalene relative to their respective MSCs in groundwater.

Appendix H provides the comprehensive soil analytical results from the Site Assessment and Site Characterization. Laboratory reports are provided in **Appendix I**.

6.3.1 Soil Characterization Results

Benzene

As shown on **Table 6**, benzene was detected in surface soil in the area at a concentration greater than the Non-Res UA S-GW MSC (0.5 milligrams per kilogram [mg/kg]). The concentrations in surface soil ranged from non-detect to 2.8 mg/kg. Benzene was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg) at 21 locations and at concentrations greater than the Non-Res DC MSC (330 mg/kg) at one location. The concentrations in subsurface soil ranged from non-detect to 360 mg/kg.

These boring locations are shown on **Figure 5a** and **5b**. **Figures 6a** and **6b** provide an additional illustration of the spatial distribution of benzene in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix H**.

Naphthalene

As shown on **Table 6**, naphthalene was not detected in surface soil in the area at a concentration greater than the Non-Res UA S-GW MSC (25 mg/kg). Naphthalene was detected in subsurface soil at one location at a concentration greater than the Non-Res UA S-GW MSC (25 mg/kg). The concentrations in subsurface soil ranged from non-detect to 48 mg/kg.



This boring location is shown on **Figure 5b**. **Figure 7** provides an additional illustration of the spatial distribution of naphthalene in subsurface soil, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix H**.

6.3.2 Groundwater Characterization Results

The TG05-MW-01 well location was targeted towards the location with the highest naphthalene soil concentration, so selected since the presence of naphthalene could be potentially associated with PB 253 given its former contents (i.e., diesel range distillate). While the benzene concentrations in the PB-253-01 boring were higher than those observed in PB-253-02, based on multiple lines of evidence (see Section 6.4), the presence of benzene (and possibly naphthalene) in soil were suspected to not be associated with PB 253. Also, since groundwater in this general area has been extensively sampled in the past, PESRM elected to bias the well location closer to PB 253.

Additionally, information presented in Evergreen’s 2021 *AOI-4 RIR Addendum* indicates that groundwater mounding near S-233 induces a localized westward gradient toward PB 253. Thus, being downgradient of the elevated concentrations in soil it can be used to assess the suspected source area in addition to accomplishing its primary objective of monitoring groundwater conditions proximal to PB 253.

Ransom gauged 29 monitoring well locations in the vicinity of PB 253 and measured the depth-to-water and depth-to-product from the top of casing (TOC). The results of the gauging activities are presented in **Table 5**. LNAPL-corrected depth-to-water measurements and groundwater elevations are also presented in **Table 5**, and the interpreted potentiometric surface is shown in **Figure 9**. The local groundwater flow direction in the vicinity of PB 253 is interpreted to be to the west/northwest. Monitoring well S-233 is interpreted as the local upgradient monitoring well, and TG05-MW-01 is interpreted as a downgradient well. The groundwater mounding noted by Evergreen was observed in the Ransom gauging results. Also, during well gauging, measurable LNAPL was confirmed in 9 of the 29 monitoring wells, including TG05-MW-01. The measured LNAPL thicknesses are presented in **Table 5**.

For initial characterization purposes and to allow for a comparison to Evergreen’s historical observations, samples of the LNAPL were collected for analysis from wells S-235, S-240, and TG05-MW-01. The results of this characterization are presented in **Appendix H**. High concentrations of petroleum-related chemicals were identified in each of the LNAPL samples collected. According to the narrative provided by the laboratory, the samples:

“contain a combination of materials eluting in the low to mid weight ranges of the chromatogram. The first material present appears to be petroleum in nature and resembles gasoline. The second material present is similar to Fuel Oil #2/Diesel Fuel. In an analysis of an undegraded product the n-alkanes are typically the dominant constituents, as seen in the petroleum reference chromatogram. As the product deteriorates, the n-alkanes are preferentially degraded, leaving behind other constituents such as isoprenoids. The analytical testing of the sample identified a pattern of isoprenoids. The level of alkanes and their ratios to the isoprenoids present indicates that the fuel oil has undergone degradation.”



Groundwater sampling results are presented in **Table 7** and in **Figure 9**. During the October 2022 event, benzene, ethyl benzene, MTBE, toluene, 1,2,4-TMB, and naphthalene were identified in TG05-MW-01 at concentrations exceeding their respective Non-Res UA GW MSCs. During the November 2022 event, the 1,2,4-TMB concentration was reported below the MSC. Benzene, ethyl benzene, 1,2,4-TMB, xylenes, and naphthalene were identified in S-233 at concentrations exceeding their respective Non-Res UA GW MSCs. During the November 2022 event, the xylenes concentration was reported below the MSC.

6.3.3 Vapor Intrusion

At this time, because there is no current vapor intrusion exposure in this area, and because future assessment is planned, vapor intrusion exposure in the Tank Group 05 area is not a current or reasonably expected future exposure scenario and it was not considered in determining the need for additional Site Characterization sampling. However, at the request of PADEP, soil and groundwater concentrations have been compared to the PADEP generic SHS vapor intrusion screening levels (VISL) for soil and groundwater to identify locations where COC concentrations may be of interest with regards to vapor intrusion exposure.

The comparisons of soil and groundwater sampling results to the generic VISLs are presented in **Tables 8a** (soil) and **8b** (groundwater) and the spatial distribution of locations with concentrations greater than the VISL are presented in **Figure 11a/11b** (soil), and **11C** (groundwater). For completeness, these tables and figures include a comparison of historical data collected by Evergreen from soil and groundwater sampling locations.

6.4 Site Characterization Results Evaluation

PESRM conducted an evaluation of the site characterization soil, groundwater, and LNAPL results described above prior to additional characterization to delineate contamination. This evaluation was conducted with the objective of determining the source of the soil contamination, groundwater contamination, and LNAPL identified proximal to PB 253.

Based on multiple lines of evidence, the contamination does not appear to be associated with releases from PB 253. According to facility records, PB 253 held diesel range distillate. An MSDS for the distillate indicates that benzene would not be present in the product in any appreciable amount. The MSDS is presented in **Appendix J**. A Facility worker confirmed to PESRM that the tank contained the distillate, and that benzene would not have been present in the product. Furthermore, elevated concentrations of both benzene and naphthalene were identified at location PB-253-02 at 4.5-5.0 ft bgs. Naphthalene is a potential component of diesel range distillate; however, because of their identification in the same soil sample, it is interpreted that the benzene and naphthalene are likely a result of the same release, which cannot be attributed to the PB 253 tank system.

Any release that would have occurred from the PB 253 tank system or piping would have been a surficial release. Therefore, soil contamination identified at depths closer to the surface is likely nearer to the source area than contamination identified at greater depths. As depicted in **Figure 6a**, benzene was the only contaminant identified in surficial soils (0-2 ft bgs) at an elevated concentration (PB-253-19). This location is outside of the tank containment area, while lower concentrations of contaminants have been



detected inside of the containment area and directly beneath PB 253 piping. This indicates that the source of the release is likely unrelated to the PB 253 tank system.

In addition, the highest concentrations of benzene were detected outside of the PB 253 containment berm, and the concentrations of benzene in soil samples collected during the site characterization effort increase with distance from PB 253. Soil boring PB-253-20 is the location with the highest detected concentrations of benzene and has been interpreted to be proximal to the release source area. This boring is located outside of the PB 253 containment berm, indicating that it is not resultant of a release from the tank PB 253. This, in combination with the conclusions drawn about the presence of benzene in the product held within the PB 253 tank and piping, indicate an alternative source for the release.

The results of the LNAPL characterization indicate that the samples from wells TG05-MW-01, S-240, and S-235 are a similar mixture to the LNAPL samples from the area that were characterized historically by Evergreen (Stantec 2017). Specifically, the LNAPL is a mix of light and middle distillate, as shown on **Table 9**, Figure 10, and Figure 6-1 of the AOI 4 RIR.

As shown in **Table 5**, the greatest LNAPL thickness was measured in monitoring well S-240, which is the monitoring well located closest to the highest benzene concentrations in soil samples. This is another indication that the source of contamination in this area is likely outside of the berm and is a release that cannot be attributed to the PB 253 tank system.

Based upon the MSDS presented in **Appendix J** the groundwater concentrations at the monitoring wells sampled during site characterization cannot be entirely related to a release from the PB 253 tank system. Benzene and toluene are not found in diesel-range distillate in any appreciable quantity but are two of the contaminants with the highest reported concentrations in groundwater. In addition, MTBE was detected in TG05-MW-01 but would not be related to the diesel range-distillate contained within PB 253. This indicates that the source of the groundwater contamination is unlikely to be related to a release from PB 253.

In addition, historical groundwater sampling in the area indicates contamination is not related to releases from PB 253. The following table provides a comparison of COC concentrations in well S-233 (April 2010) and the maximum concentrations of COCs identified in groundwater in S-233 and TG05-MW-01 during the October and November 2022 sampling events:

Parameter	S-233	S-233	TG05-MW-01
	April 2010	Oct/Nov 2022	Oct/Nov 2022
Benzene	3,600 µg/L	9,700 µg/L*	690 µg/L
Ethyl Benzene	3,200 µg/L*	1,400 µg/L	1,300 µg/L
MTBE	Not Detected	Not Detected	740 µg/L*
Toluene	4,300 µg/L	600 µg/L	7,000 µg/L*
Xylenes	20,000 µg/L*	11,000 µg/L	6,500 µg/L

Notes:

- 1,2,4-TMB and naphthalene were not analyzed during the April 2010 sampling event
- * - Indicates highest concentration in comparison



Benzene, which has been determined to not be related to the product contained within the PB 253 tank system, was detected at the highest concentration in S-233 during the October 2022 event. Similarly, concentrations of MTBE and toluene, both of which have been determined to not be related to the product contained within the PB 253 tank system were detected at the highest concentrations in TG05-MW-01 during the October/November 2022 events. This indicates that additional dissolved phase groundwater contamination that is not related to the tank system has occurred between 2010 and 2022.

Evergreen's AOI-4 RIR notes that:

"[d]uring July/August 2016, product-soaked soil was identified at the ground surface around pipes which are associated with Tank 253 but outside the emergency containment dike, located north of well S-241. The area around the lines was excavated and product removed by PES personnel. In addition, there is a product line that is suspected to have leaked which runs north-south along the access road leading to the Penrose system wells, approximately bisecting AOI 4. This line is being excavated and replaced in sections by PES."

While indicating that this historical release was near the PB 253 piping, no suspected leak was identified in the PB 253 piping. In addition, both ethyl benzene and xylenes were detected at the highest concentrations during the April 2010 sampling event. These constituents are present in product contained in PB 253. If a 2016 release had occurred from the PB 253 tank system that had impacted groundwater, one would expect groundwater concentrations to increase for both compounds. This further suggests that the contamination identified is not associated with a release from PB 253.

With consideration for the Site Assessment and Site Characterization sampling results, the contamination observed east of PB 253 does not appear to be associated with a release from PB 253. Instead, it is likely associated with historical releases which occurred east of PB 253. As a result, the contamination identified in proximity to PB 253 would not be subject to corrective action under Act 32.

PESRM plans to further investigate, characterize, and address the contamination identified east of PB 253 under Act 2. PESRM plans to submit a Notice of Intent to Remediate under Act 2 for this release in early 2023.

6.5 Data Quality Assurance, Quality Control, and Usability

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

6.5.1 Quality Assurance/Quality Control Samples

During the Site Assessment/Characterization field activities, approximately one trip blank sample per day and 1 field blank per 10 soil samples was submitted to the analytical laboratory to evaluate potential cross-contamination during sample container shipment and storage. Results of the quality assurance and quality control sample analyses are provided in **Appendix H**. VOCs and naphthalene were not



detected in blank samples at concentrations greater than the laboratory reporting limits. As such, there is no concern associated with laboratory cross-contamination and/or sampling-related cross-contamination related to the samples collected from the Site.

Approximately one field duplicate sample per every 20 soil samples was also collected to evaluate the variance in the sampling/analysis. Relative percent differences (RPDs) for duplicate pairs were calculated and ranged from 0 to 199 percent with an average of 41 percent. Overall, RPDs <50 percent generally represent the level of variability. Reasons for a higher RPDs can include sample heterogeneity or samples with high concentrations. Given that the predominant soil type sampled is anthropogenic fill some additional variability is expected and reasonable. However, given the variability observed for this assessment, rather than averaging duplicate pair samples, the higher result from the parent/duplicate of the pair was used for quantitative assessment.

6.5.2 General Quality Control Checks

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



7 Conclusion

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

The Site Assessment and Site Characterization activities described in this Report were performed in accordance with the applicable provisions of Act 32, 25 PA Code Chapter 245 (Subchapter D), and Terraphase’s Work Plan (2021). The specific ASTs addressed in this Report include:

- PB 824 (PADEP No. 009A)
- PB 823 (PADEP No. 047A)
- PB 835 (PADEP No. 010A)
- PB 825 (PADEP No. 048A)
- PB 253 (PADEP No. 042A)
- PB 833 (PADEP No. 051A)
- PB 821 (PADEP No. 045A)
- PB 836 (PADEP No. 052A)
- PB 822 (PADEP No. 046A)

Visual observations of the ASTs in Tank Group 05 revealed no indications of release. Based upon the results, no evidence of a release from PB 824, PB 835, PB 821, PB 822, PB 823, PB 825, PB 833, and PB 836 was identified. The Site Assessment outcome for PB 835, PB 821, PB 822, PB 823, PB 824, PB 825, PB 833, and PB 836 is “No Obvious Contamination – Sample Results Meet Action Levels”.

Based upon the results of soil samples collected during the Site Assessment and a comparison to generic MSCs, a potential release of regulated substances to the environment from PB 253 was identified. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Action Levels”. Notifications of release were submitted to the PADEP on January 3, 2022. PADEP assigned the release in Tank Group 05 to Incident No. 57203. The notifications indicated that unknown amounts of petroleum-related substances were potentially released in Tank Group 05 from this specific AST.

Site Characterization soil sampling was subsequently performed in Tank Group 05. The results of the Site Characterization indicate that the contamination identified in Tank Group 05 is not related to releases from PB 253.

Based on the information presented, PESRM has overcome the presumption of liability under Act 32 as detailed in 25 PA Code §245.303(d). PESRM respectfully requests that Storage Tank Incident No. 57203 be closed. The release identified near PB 253 will be addressed through Act 2. PESRM plans to submit a Notice of Intent to Remediate under Act 2 for this release in early 2023.



8 References

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- . 2022. *Sitewide Fate and Transport Remedial Investigation Report*. June 30.
- Terraphase Engineering Inc. (Terraphase). 2021. *Aboveground Storage Tank Closure Work Plan*. March.



Tables

- 1 Aboveground Storage Tank Details
- 2 Evergreen Comprehensive List, Constituents of Concern (COC)
- 3 Soil Screening Summary – Tank Group 05 (Historical)
- 4 COCs Identified in Soil in Proximity to Tank Group 05 ASTs
- 5 Monitoring Well Gauging Summary
- 6 Soil Screening Summary – Tank Group 05 (Site Assessment, Site Characterization)
- 7 Groundwater Screening Summary – Tank Group 05 (Site Characterization)
- 8a Soil Vapor Intrusion Screening Summary
- 8b Groundwater Vapor Intrusion Screening Summary
- 9 Summary of Recent LNAPL Gauging and Comparison to Historical Conditions



Table 1

Aboveground Storage Tank Details

Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	Tank Group	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Proposed Analyte List ^x	Regulatory Status	Facility ID	Status Modification Date	Tank Type	Double Bottom	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	GPS Survey Complete	Demo Complete	Storage Tanks Reg./Permit App Form Submitted	Release Notification	Incident No.	Int. Remedial/Corrective Action Required
Point Breeze	5	009A	PB 824	5,846,400	15MV2, Distillate	Short List 4	R	51-33620	2/2/2022	Cone Roof	Y, Removed	144	48		Y	Y	2/18/2022			
Point Breeze	5	010A	PB 835	5,359,200	Distillate, Untreated	Short List 3-5	R	51-33620	3/30/2022	IFR	Y, Removed	144	48		Y	Y	3/30/2022			
Point Breeze	5	042A	PB 253	2,818,200	15MV2, Distillate	Short List 4	R	51-33620	2/2/2022	Cone Roof	N	100	48		Y	Y	2/18/2022	1/3/2022	57203	No
Point Breeze	5	045A	PB 821	5,359,200	Light Cycle Oil	Short List 1-5	R	51-33620	1/26/2022	IFR	Y, Removed	144	48		Y	Y	2/3/2022			
Point Breeze	5	046A	PB 822	5,359,200	Light Cycle Oil	Short List 1-5	R	51-33620	1/31/2022	IFR	N	144	48		Y	Y	2/3/2022			
Point Breeze	5	047A	PB 823	5,846,400	Limited Slip Differential (LSD)	Short List 5	R	51-33620	12/3/2021	Cone Roof	Y, Removed	144	48		Y	Y	12/16/2021			
Point Breeze	5	048A	PB 825	3,985,632	15MV2, Distillate	Short List 4	R	51-33620	2/2/2022	Cone Roof	Y, Removed	120	48		Y	Y	2/18/2022			
Point Breeze	5	051A	PB 833	5,817,000	Vacuum Gas Oil	Short List 1-5	R	51-33620	2/2/2022	Cone Roof	Y, Removed	150	48		Y	Y	2/18/2022			
Point Breeze	5	052A	PB 836	5,817,000	Distillate, Untreated	Short List 3-5	R	51-33620	3/30/2022	IFR	Y, Removed	150	48		Y	Y	3/30/2022			

Abbreviations:

IFR - Internal Floating Roof

N - No

R - Removed

Y - Yes

Table 2**Evergreen Comprehensive List, Constituents of Concern (COC)**

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Chem Group	Chemical	CASRN
VOC	Benzene	71-43-2
VOC	sec-Butylbenzene	135-98-8
VOC	tert-Butylbenzene	98-06-6
VOC	Cumene	98-82-8
VOC	Cyclohexane	110-82-7
VOC	1,2-Dibromoethane	106-93-4
VOC	1,2-Dichloroethane	107-06-2
VOC	Ethyl Benzene	100-41-4
VOC	n-Hexane	110-54-3
VOC	Methyl tert-butyl ether	1634-04-4
VOC	Toluene	108-88-3
VOC	1,2,4-Trimethylbenzene	95-63-6
VOC	1,3,5-Trimethylbenzene	108-67-8
VOC	Xylenes (total)	1330-20-7
SVOC	Acenaphthene	83-32-9
SVOC	Anthracene	120-12-7
SVOC	Benzo(a)anthracene	56-55-3
SVOC	Benzo(a)pyrene	50-32-8
SVOC	Benzo(b)fluoranthene	205-99-2
SVOC	Benzo(g,h,i)perylene	191-24-2
SVOC	Benzo(k)fluoranthene	207-08-9
SVOC	1,1-Biphenyl	92-52-4
SVOC	Chrysene	218-01-9
SVOC	Dibenz(a,h)anthracene	53-70-3
SVOC	2,4-Dimethylphenol	105-67-9
SVOC	2,4-Dinitrophenol	51-28-5
SVOC	Fluoranthene	206-44-0
SVOC	Fluorene	86-73-7
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5
SVOC	2-Methylnaphthalene	91-57-6
SVOC	2-Methylphenol	95-48-7
SVOC	3-Methylphenol	108-39-4
SVOC	4-Methylphenol	106-44-5
SVOC	Naphthalene	91-20-3
SVOC	4-Nitrophenol	100-02-7
SVOC	Phenanthrene	85-01-8
SVOC	Phenol	108-95-2
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7
SVOC	Diethylphthalate	84-66-2
SVOC	Di-n-butylphthalate	84-74-2
SVOC	Pyrene	129-00-0
SVOC	Pyridine	110-86-1
SVOC	1-Benzazine	91-22-5
INORG	Cobalt	7440-48-4
INORG	Lead	7439-92-1
INORG	Nickel	7440-02-0
INORG	Vanadium	7440-62-2
INORG	Zinc	7440-66-6

Table 3
Soil Screening Summary
Tank Group 05 (Historical)
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Chem Group	Chemical	CASRN	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	PADEP MSCs					
									Non-Res Direct Contact MSC for Surface Soil (0-2 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Surface Soil	Non-Res Direct Contact MSC for Subsurface Soil (2-15 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Subsurface Soil	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)	Ratio of Max Detect to Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC
Surface Soil	VOC	Benzene	71-43-2	41	8	0.00034	0.14	0.90	280	0.0032			0.5	1.8
Surface Soil	VOC	sec-Butylbenzene	135-98-8	5	2	0.0027	4.9	9.8	10000	0.0010			2300	0.0042
Surface Soil	VOC	tert-Butylbenzene	98-06-6	5	1	0.60	0.60	0.60	10000	0.000060			1800	0.00034
Surface Soil	VOC	Cumene	98-82-8	41	10	0.0085	0.73	5.2	10000	0.00052			2500	0.0021
Surface Soil	VOC	Cyclohexane	110-82-7	5	1	4.1	4.1	4.1	10000	0.00041			6900	0.00059
Surface Soil	VOC	Ethyl Benzene	100-41-4	41	9	0.0011	1.6	11	880	0.013			70	0.16
Surface Soil	VOC	Methyl tert-butyl ether	1634-04-4	27	1	0.0069	0.0069	0.0007	8500	0.0000081			2	0.00035
Surface Soil	VOC	Toluene	108-88-3	41	5	0.0069	0.17	0.56	10000	0.000056			100	0.0056
Surface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	21	5	0.00032	6.8	34	4700	0.0072			300	0.11
Surface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	21	3	0.0044	3.5	11	4700	0.0022			93	0.11
Surface Soil	VOC	Xylenes (total)	1330-20-7	29	6	0.00074	2.7	13	7900	0.0017			1000	0.013
Surface Soil	SVOC	Acenaphthene	83-32-9	5	1	1.9	1.9	1.9	190000	0.000010			4700	0.00040
Surface Soil	SVOC	Anthracene	120-12-7	33	11	0.038	0.65	3.3	190000	0.000017			350	0.009
Surface Soil	SVOC	Benzo(a)anthracene	56-55-3	33	11	0.016	0.19	0.65	130	0.0050			340	0.0019
Surface Soil	SVOC	Benzo(a)pyrene	50-32-8	33	8	0.016	0.18	0.66	91	0.0072			46	0.014
Surface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	33	9	0.021	0.21	0.92	76	0.012			170	0.005
Surface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	33	8	0.019	0.15	0.45	190000	0.0000024			180	0.0025
Surface Soil	SVOC	Chrysene	218-01-9	33	12	0.016	0.33	2.3	760	0.0030			230	0.010
Surface Soil	SVOC	Fluoranthene	206-44-0	5	1	0.22	0.22	0.22	130000	0.0000017			3200	0.000068
Surface Soil	SVOC	Fluorene	86-73-7	33	14	0.028	1.4	7.7	130000	0.000059			3800	0.0020
Surface Soil	SVOC	2-Methylnaphthalene	91-57-6	5	1	24	24.0	24	240	0.098			100	0.24
Surface Soil	SVOC	Naphthalene	91-20-3	41	15	0.021	1.7	7.4	66	0.11			25	0.30
Surface Soil	SVOC	Phenanthrene	85-01-8	33	17	0.026	2.8	20	190000	0.00011			10000	0.0020
Surface Soil	SVOC	Pyrene	129-00-0	33	17	0.008	0.42	3.0	96000	0.000031			2200	0.0014
Surface Soil	INORG	Cobalt	7440-48-4	5	5	3.8	6.7	9.6	960	0.010			130	0.074
Surface Soil	INORG	Lead	7439-92-1	39	39	6.6	420	3100	1000	3.10			450	6.9
Surface Soil	INORG	Nickel	7440-02-0	5	5	11	12	14	64000	0.00022			650	0.021
Surface Soil	INORG	Vanadium	7440-62-2	5	5	28	31	37	220	0.17			680	0.054
Surface Soil	INORG	Zinc	7440-66-6	5	5	32	36	42	190000	0.00022			12000	0.0035
Subsurface Soil	VOC	Benzene	71-43-2	48	8	0.0014	0.12	0.29			330	0.00086	0.5	0.57
Subsurface Soil	VOC	sec-Butylbenzene	135-98-8	5	2	0.0027	0.019	0.035	10000	0.0000035			2300	0.000015
Subsurface Soil	VOC	tert-Butylbenzene	98-06-6	5	1	0.0013	0.0013	0.0013	10000	0.00000013			1800	0.00000074
Subsurface Soil	VOC	Cumene	98-82-8	48	21	0.00023	1.9	16	10000	0.0016			2500	0.0064
Subsurface Soil	VOC	Cyclohexane	110-82-7	5	1	0.015	0.015	0.015	10000	0.0000015			6900	0.0000021
Subsurface Soil	VOC	Ethyl Benzene	100-41-4	48	13	0.00054	3.2	22	1000	0.022			70	0.31
Subsurface Soil	VOC	Methyl tert-butyl ether	1634-04-4	29	1	0.0067	0.007	0.0067	9800	0.00000068			2	0.0034
Subsurface Soil	VOC	Toluene	108-88-3	48	5	0.00083	0.40	1.5	10000	0.00015			100	0.015
Subsurface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	30	12	0.00054	7.9	49	5400	0.0091			300	0.16
Subsurface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	30	9	0.0020	3.4	15	5400	0.0029			93	0.17
Subsurface Soil	VOC	Xylenes (total)	1330-20-7	39	11	0.0019	10	56	9100	0.0062			1000	0.056
Subsurface Soil	SVOC	Acenaphthene	83-32-9	5	1	0.17	0.17	0.17	190000	0.00000088			4700	0.000036
Subsurface Soil	SVOC	Anthracene	120-12-7	29	5	0.074	0.17	0.40	190000	0.0000021			350	0.0011
Subsurface Soil	SVOC	Benzo(a)anthracene	56-55-3	29	2	0.020	0.13	0.24	190000	0.0000013			340	0.00071
Subsurface Soil	SVOC	Benzo(a)pyrene	50-32-8	29	1	0.17	0.17	0.17	190000	0.00000092			46	0.0038
Subsurface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	29	1	0.22	0.22	0.22	190000	0.0000011			170	0.0013
Subsurface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	29	1	0.10	0.10	0.10	190000	0.00000051			180	0.00053
Subsurface Soil	SVOC	Chrysene	218-01-9	29	3	0.020	0.11	0.24	190000	0.0000012			230	0.0010
Subsurface Soil	SVOC	Fluorene	86-73-7	29	13	0.036	0.67	3.4	190000	0.000018			3800	0.00089
Subsurface Soil	SVOC	2-Methylnaphthalene	91-57-6	5	1	1.5	1.5	1.5	270	0.0056			100	0.015
Subsurface Soil	SVOC	Naphthalene	91-20-3	48	17	0.041	2.8	12	77	0.16			25	0.48
Subsurface Soil	SVOC	Phenanthrene	85-01-8	29	14	0.030	1.0	4.1	190000	0.000022			10000	0.00041
Subsurface Soil	SVOC	Pyrene	129-00-0	29	9	0.042	0.19	0.70	190000	0.0000037			2200	0.00032
Subsurface Soil	INORG	Cobalt	7440-48-4	5	5	2.7	7.2	20	190000	0.00010			130	0.15
Subsurface Soil	INORG	Lead	7439-92-1	39	39	2.7	11	50	190000	0.00026			450	0.11
Subsurface Soil	INORG	Nickel	7440-02-0	5	5	6.4	10	14	190000	0.000074			650	0.022
Subsurface Soil	INORG	Vanadium	7440-62-2	5	5	5.9	16	30	190000	0.00016			680	0.044
Subsurface Soil	INORG	Zinc	7440-66-6	5	5	21	35	59	190000	0.00031			12000	0.0049

Notes:

Only constituents detected are shown.
The Non-Residential Direct Contact MSC for Soil is the lower of the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) and Subsurface Soil (2-15 ft).
The MSCs for Benzo(g,h,i)perylene are the values provided by the agency for Pyrene.
The MSCs for Phenanthrene are the values provided by the agency for Pyrene.
The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).
Ratios of concentration to the MSCs greater than 1 are shaded in bold.
Chem Group - chemical group; INORG - metals; SVOC - semi-volatile organic compounds; VOC - volatile organic compounds

Table 4

COCs Identified in Soil in Proximity to Tank Group 05 ASTs

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

PB 253	PB 821	PB 822
Benzene Naphthalene	None	None
PB 823	PB 824	PB 825
None	None	None
PB 833	PB 835	PB 836
None	None	None

Table 5
Monitoring Well Gauging Summary
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location ID	TOC (ft)	October 13, 2022				
		Depth to Product (ft)	Depth to Water (ft)	Depth to Water (Corrected) (ft)	Groundwater Elevation (ft)	Total LNAPL Thickness (ft)
RW-702	20.96	--	20.34	20.34	0.61	--
RW-703	20.62	--	19.99	19.99	0.63	--
RW-705	15.92	--	15.29	15.29	0.63	--
RW-707	16.29	--	15.70	15.70	0.59	--
RW-708	15.49	--	14.88	14.88	0.61	--
RW-710	15.88	--	15.55	15.55	0.33	--
RW-711	15.49	--	14.86	14.86	0.63	--
RW-712	15.56	--	14.98	14.98	0.58	--
RW-713	15.02	--	14.40	14.40	0.62	--
RW-714	15.21	--	14.45	14.45	0.76	--
RW-715	15.37	--	14.78	14.78	0.59	--
RW-716	15.54	--	14.87	14.87	0.67	--
RW-717	15.61	--	14.90	14.90	0.71	--
S-124	23.20	22.52	22.91	22.58	0.62	0.39
S-221	23.00	22.17	23.21	22.34	0.66	1.04
S-222	16.29	--	15.50	15.50	0.79	--
S-223	15.88	--	15.16	15.16	0.72	--
S-233	24.35	20.83	20.88	20.84	3.51	0.05
S-235	23.13	22.41	23.33	22.56	0.57	0.92
S-236	22.97	22.25	23.12	22.39	0.58	0.87
S-237	22.82	22.10	22.89	22.23	0.59	0.79
S-239	15.82	--	15.12	15.12	0.70	--
S-240	23.86	23.10	25.65	23.51	0.35	2.55
S-241	26.08	25.35	27.20	25.65	0.43	1.85
S-245	22.21	--	21.50	21.50	0.71	--
S-246	21.56	--	19.20	19.20	2.36	--
S-329	20.92	--	20.25	20.25	0.67	--
S-408	15.88	--	15.10	15.10	0.78	--
TG05-MW-01	22.91	22.22	24.11	22.52	0.39	1.89

Note:
Corrected Depth to Water Levels factor an average LNAPL density of 0.839, where present.

Table 6
Soil Screening Summary
Tank Group 05 (Site Assessment; Site Characterization)
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Chem Group	Chemical	CASRN	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	PADEP MSCs					PADEP Screening Values		
									Non-Res Direct Contact MSC for Surface Soil (0-2 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Surface Soil	Non-Res Direct Contact MSC for Subsurface Soil (2-15 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Subsurface Soil	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)	Ratio of Max Detect to Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Res Soil Vapor Intrusion (mg/kg)	Ratio of Max Detect to Soil Non-Res Vapor Intrusion
Surface Soil	VOC	Benzene	71-43-2	17	6	0.00038	0.57	2.8	280	0.010			0.5	5.6	0.13	22
Surface Soil	VOC	Cumene	98-82-8	10	2	0.021	0.32	0.62	10000	0.000062			2500	0.00025	2500	0.00025
Surface Soil	VOC	Ethyl Benzene	100-41-4	10	3	0.0057	0.041	0.10	880	0.00011			70	0.0014	46	0.0022
Surface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	10	3	0.00034	2.10	6.0	4700	0.0013			300	0.020	35	0.17
Surface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	10	2	0.20	2.60	4.9	4700	0.0010			93	0.053	210	0.023
Surface Soil	SVOC	Naphthalene	91-20-3	11	3	0.052	0.21	0.39	66	0.0059			25	0.016	25	0.016
Subsurface Soil	VOC	Benzene	71-43-2	182	48	0.00017	16	360			330	1.1	0.5	720	0.13	2800.00
Subsurface Soil	VOC	Cumene	98-82-8	139	55	0.00013	0.46	5.9			10000	0.00059	2500	0.0024	2500	0.0024
Subsurface Soil	VOC	Ethyl Benzene	100-41-4	139	35	0.00023	0.93	9.4			1000	0.0094	70	0.13	46	0.20
Subsurface Soil	VOC	Methyl tert-butyl ether	1634-04-4	139	8	0.00022	0.00045	0.00083			9800	0.000000085	2	0.00042	1.4	0.0006
Subsurface Soil	VOC	Toluene	108-88-3	139	10	0.00092	0.19	0.70			10000	0.000070	100	0.0070	44	0.016
Subsurface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	139	36	0.00047	4.9	42			5400	0.0078	300	0.14	35	1.2
Subsurface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	139	35	0.00028	1.6	18			5400	0.0033	93	0.19	210	0.086
Subsurface Soil	VOC	Xylenes (total)	1330-20-7	50	7	0.0027	1.7	8.7			9100	0.0010	1000	0.0087	990	0.009
Subsurface Soil	SVOC	Anthracene	120-12-7	100	17	0.060	0.38	1.2			190000	0.0000063	350	0.0034		
Subsurface Soil	SVOC	Benzo(a)anthracene	56-55-3	100	28	0.023	0.25	2.2			190000	0.000012	340	0.0065		
Subsurface Soil	SVOC	Benzo(a)pyrene	50-32-8	100	18	0.050	0.51	3.2			190000	0.000017	46	0.070		
Subsurface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	100	23	0.036	0.40	2.9			190000	0.000015	170	0.017		
Subsurface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	100	23	0.024	0.25	2.4			190000	0.000013	180	0.013		
Subsurface Soil	SVOC	Chrysene	218-01-9	100	29	0.024	0.30	2.2			190000	0.000012	230	0.010		
Subsurface Soil	SVOC	Fluorene	86-73-7	100	28	0.021	0.58	4.9			190000	0.000026	3800	0.0013		
Subsurface Soil	SVOC	Naphthalene	91-20-3	159	42	0.014	2.5	48			77	0.62	25	1.9	25	1.9
Subsurface Soil	SVOC	Phenanthrene	85-01-8	100	36	0.031	1.2	14			190000	0.000074	10000	0.0014		
Subsurface Soil	SVOC	Pyrene	129-00-0	100	31	0.018	0.55	7.4			190000	0.000039	2200	0.0034		
Subsurface Soil	INORG	Lead	7439-92-1	50	50	2.8	28	280			190000	0.0015	450	0.62		

Notes:
Only constituents detected are shown.
The Non-Residential Direct Contact MSC for Soil is the lower of the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) and Subsurface Soil (2-15 ft).
The MSCs for Benzo(g,h,i)perylene are the values provided by the agency for Pyrene.
The MSCs for Phenanthrene are the values provided by the agency for Pyrene.
The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).
Ratios of concentration to the MSCs greater than 1 are shaded in bold.
Chem Group - chemical group; INORG - metals; SVOC - semi-volatile organic compounds; VOC - volatile organic compounds

Table 7
Groundwater Screening Summary
Tank Group 05 (Site Characterization)

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Chem Group	Chemical	CASRN	Meas Basis	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	PADEP MSCs			
										Non-Res GW Used Aquifer (TDS ≤ 2500) (mg/L)	Ratio of Max Detect to Non-Res GW Used Aquifer (TDS ≤ 2500)	Non-Res GW SHS VI Screening Value (mg/L)	Ratio of Max Detect to Non-Res GW SHS VI Screening Value
Groundwater	VOC	Benzene	71-43-2	T	4	4	0.66	4.8	9.7	0.0050	1940	0.35	28
Groundwater	VOC	Cumene	98-82-8	T	4	3	0.015	0.040	0.060	3.5	0.02	24	0.0025
Groundwater	VOC	Ethyl Benzene	100-41-4	T	4	4	1.0	1.2	1.4	0.70	2.0	0.86	1.6
Groundwater	VOC	Methyl tert-butyl ether	1634-04-4	T	4	2	0.66	0.70	0.74	0.020	37	96	0.0077
Groundwater	VOC	Toluene	108-88-3	T	4	4	0.46	3.5	7.0	1.0	7	430	0.016
Groundwater	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4	4	0.49	0.97	1.5	0.53	2.8	0.75	2
Groundwater	VOC	1,3,5-Trimethylbenzene	108-67-8	T	4	4	0.14	0.29	0.44	0.53	0.83	1.2	0.37
Groundwater	VOC	Xylenes (total)	1330-20-7	T	4	4	5.6	8.2	11	10	1.1	12	0.95
Groundwater	SVOC	Benzo(a)anthracene	56-55-3	T	4	4	0.000020	0.000033	0.000040	0.0039	0.010		
Groundwater	SVOC	Benzo(b)fluoranthene	205-99-2	T	4	1	0.000010	0.000010	0.000010	0.0012	0.0083		
Groundwater	SVOC	Chrysene	218-01-9	T	4	3	0.000020	0.000023	0.000030	0.0019	0.016		
Groundwater	SVOC	Fluorene	86-73-7	T	4	4	0.0058	0.008	0.0097	1.9	0.0051		
Groundwater	SVOC	Naphthalene	91-20-3	T	4	4	0.12	0.17	0.21	0.10	2.1	1.3	0.16
Groundwater	SVOC	Phenanthrene	85-01-8	T	4	4	0.0080	0.013	0.017	1.1	0.015		
Groundwater	SVOC	Pyrene	129-00-0	T	4	4	0.00016	0.00048	0.00084	0.13	0.0065		
Groundwater	INORG	Lead	7439-92-1	D	4	2	0.00036	0.00037	0.00038	0.0050	0.077		

Notes:

Only chemicals detected in the area are shown.

The MSCs for Phenanthrene are the criteria provided by the agency for Pyrene.

The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).

Ratios of concentration to the MSCs greater than 1 are shaded in bold.

Chem Group - chemical group

Meas Basis - measured basis; T = total, D = dissolved

Table 8a

Soil VI Screening Summary

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Tank Group	Chem Group	Chemical	CASRN	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Non-Res Soil Vapor Intrusion (mg/kg)	Ratio of Max Detect to Soil Non-Res Vapor Intrusion
Soil	AST	Tank Group 05	VOC	Benzene	71-43-2	199	54	0.00017	15	360	0.13	2800
Soil	AST	Tank Group 05	VOC	Cumene	98-82-8	149	57	0.00013	0.46	5.9	2500	0.0024
Soil	AST	Tank Group 05	VOC	Ethyl Benzene	100-41-4	149	38	0.00023	0.86	9.40	46	0.20
Soil	AST	Tank Group 05	VOC	Methyl tert-butyl ether	1634-04-4	149	8	0.00022	0.00045	0.00083	1.4	0.00059
Soil	AST	Tank Group 05	VOC	Toluene	108-88-3	149	10	0.00092	0.19	0.70	44	0.016
Soil	AST	Tank Group 05	VOC	1,2,4-Trimethylbenzene	95-63-6	149	39	0.00034	4.7	42	35	1.2
Soil	AST	Tank Group 05	VOC	1,3,5-Trimethylbenzene	108-67-8	149	37	0.00028	1.6	18	210	0.086
Soil	AST	Tank Group 05	VOC	Xylenes (total)	1330-20-7	50	7	0.0027	1.7	8.7	990	0.0088
Soil	AST	Tank Group 05	SVOC	Anthracene	120-12-7	101	17	0.060	0.38	1.2		
Soil	AST	Tank Group 05	SVOC	Benzo(a)anthracene	56-55-3	101	28	0.023	0.25	2.2		
Soil	AST	Tank Group 05	SVOC	Benzo(a)pyrene	50-32-8	101	18	0.050	0.51	3.2		
Soil	AST	Tank Group 05	SVOC	Benzo(b)fluoranthene	205-99-2	101	23	0.036	0.40	2.9		
Soil	AST	Tank Group 05	SVOC	Benzo(g,h,i)perylene	191-24-2	101	23	0.024	0.25	2.4		
Soil	AST	Tank Group 05	SVOC	Chrysene	218-01-9	101	29	0.024	0.30	2.2		
Soil	AST	Tank Group 05	SVOC	Fluorene	86-73-7	101	28	0.021	0.58	4.9		
Soil	AST	Tank Group 05	SVOC	Naphthalene	91-20-3	170	45	0.014	2.3	48	25	1.9
Soil	AST	Tank Group 05	SVOC	Phenanthrene	85-01-8	101	36	0.031	1.2	14		
Soil	AST	Tank Group 05	SVOC	Pyrene	129-00-0	101	31	0.018	0.55	7.4		
Soil	AST	Tank Group 05	INORG	Lead	7439-92-1	50	50	2.8	28	280		
SOIL	Evergreen	Tank Group 05	VOC	Benzene	71-43-2	90	16	0.00034	0.13	0.90	0.13	6.9
SOIL	Evergreen	Tank Group 05	VOC	sec-Butylbenzene	135-98-8	10	4	0.0027	2.50	9.8		
SOIL	Evergreen	Tank Group 05	VOC	tert-Butylbenzene	98-06-6	10	2	0.0013	0.30	0.60		
SOIL	Evergreen	Tank Group 05	VOC	Cumene	98-82-8	90	31	0.00023	1.5	16	2500	0.0064
SOIL	Evergreen	Tank Group 05	VOC	Cyclohexane	110-82-7	10	2	0.015	2.1	4.1	6900	0.00059
SOIL	Evergreen	Tank Group 05	VOC	Ethyl Benzene	100-41-4	90	22	0.00054	2.5	22	46	0.47
SOIL	Evergreen	Tank Group 05	VOC	Methyl tert-butyl ether	1634-04-4	57	2	0.00069	0.0037	0.0067	1.4	0.0048
SOIL	Evergreen	Tank Group 05	VOC	Toluene	108-88-3	90	10	0.00069	0.29	1.5	44	0.034
SOIL	Evergreen	Tank Group 05	VOC	1,2,4-Trimethylbenzene	95-63-6	51	17	0.00032	7.6	49	35	1.4
SOIL	Evergreen	Tank Group 05	VOC	1,3,5-Trimethylbenzene	108-67-8	51	12	0.0020	3.5	15	210	0.073
SOIL	Evergreen	Tank Group 05	VOC	Xylenes (total)	1330-20-7	69	17	0.00074	7.5	56	990	0.057
SOIL	Evergreen	Tank Group 05	SVOC	Acenaphthene	83-32-9	10	2	0.17	1.0	1.9		
SOIL	Evergreen	Tank Group 05	SVOC	Anthracene	120-12-7	63	16	0.038	0.50	3.3		
SOIL	Evergreen	Tank Group 05	SVOC	Benzo(a)anthracene	56-55-3	63	13	0.016	0.18	0.65		
SOIL	Evergreen	Tank Group 05	SVOC	Benzo(a)pyrene	50-32-8	63	10	0.016	0.20	0.66		
SOIL	Evergreen	Tank Group 05	SVOC	Benzo(b)fluoranthene	205-99-2	63	11	0.021	0.24	0.92		
SOIL	Evergreen	Tank Group 05	SVOC	Benzo(g,h,i)perylene	191-24-2	63	9	0.019	0.14	0.45		
SOIL	Evergreen	Tank Group 05	SVOC	Chrysene	218-01-9	63	15	0.016	0.29	2.3		
SOIL	Evergreen	Tank Group 05	SVOC	Fluoranthene	206-44-0	10	1	0.22	0.22	0.22		
SOIL	Evergreen	Tank Group 05	SVOC	Fluorene	86-73-7	63	27	0.028	1.1	7.7		
SOIL	Evergreen	Tank Group 05	SVOC	2-Methylnaphthalene	91-57-6	10	2	1.5	13	24	1900	0.012
SOIL	Evergreen	Tank Group 05	SVOC	Naphthalene	91-20-3	90	32	0.021	2.3	12	25	0.48
SOIL	Evergreen	Tank Group 05	SVOC	Phenanthrene	85-01-8	63	32	0.026	2.0	20		
SOIL	Evergreen	Tank Group 05	SVOC	Pyrene	129-00-0	63	27	0.0075	0.35	3.0		
SOIL	Evergreen	Tank Group 05	INORG	Cobalt	7440-48-4	10	10	2.7	7	20		
SOIL	Evergreen	Tank Group 05	INORG	Lead	7439-92-1	79	79	2.7	220	3100		
SOIL	Evergreen	Tank Group 05	INORG	Nickel	7440-02-0	10	10	6.4	11	14		
SOIL	Evergreen	Tank Group 05	INORG	Vanadium	7440-62-2	10	10	5.9	23	37		
SOIL	Evergreen	Tank Group 05	INORG	Zinc	7440-66-6	10	10	21	35	59		

Notes:

Only constituents detected are shown.

The MSCs for Benzo(g,h,i)perylene are the values provided by the agency for Pyrene.

The criteria for Phenanthrene are the values provided by the agency for Pyrene.

The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).

Ratios of concentration to the RBSLs greater than 1 are shaded in bold.

Table 8b

Groundwater VI Screening Summary

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Non-Res GW SHS VI Screening Value (mg/L)	Ratio of Max Detect to Non-Res GW SHS VI Screening Value
Groundwater	AST	Tank Group 05	unconfined	VOC	Benzene	71-43-2	T	4	4	0.66	4.8	9.7	0.35	28
Groundwater	AST	Tank Group 05	unconfined	VOC	Cumene	98-82-8	T	4	3	0.015	0.040	0.060	24	0.0025
Groundwater	AST	Tank Group 05	unconfined	VOC	Ethyl Benzene	100-41-4	T	4	4	1.0	1.2	1.4	0.86	1.6
Groundwater	AST	Tank Group 05	unconfined	VOC	Methyl tert-butyl ether	1634-04-4	T	4	2	0.66	0.70	0.74	96	0.0077
Groundwater	AST	Tank Group 05	unconfined	VOC	Toluene	108-88-3	T	4	4	0.46	3.5	7.0	430	0.016
Groundwater	AST	Tank Group 05	unconfined	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4	4	0.49	0.97	1.5	0.75	2
Groundwater	AST	Tank Group 05	unconfined	VOC	1,3,5-Trimethylbenzene	108-67-8	T	4	4	0.14	0.29	0.44	1.2	0.37
Groundwater	AST	Tank Group 05	unconfined	VOC	Xylenes (total)	1330-20-7	T	4	4	5.6	8.2	11	12	0.95
Groundwater	AST	Tank Group 05	unconfined	SVOC	Benzo(a)anthracene	56-55-3	T	4	4	0.000020	0.000033	0.000040		
Groundwater	AST	Tank Group 05	unconfined	SVOC	Benzo(b)fluoranthene	205-99-2	T	4	1	0.000010	0.000010	0.000010		
Groundwater	AST	Tank Group 05	unconfined	SVOC	Chrysene	218-01-9	T	4	3	0.000020	0.000023	0.000030		
Groundwater	AST	Tank Group 05	unconfined	SVOC	Fluorene	86-73-7	T	4	4	0.0058	0.0079	0.010		
Groundwater	AST	Tank Group 05	unconfined	SVOC	Naphthalene	91-20-3	T	4	4	0.12	0.17	0.21	1.3	0.16
Groundwater	AST	Tank Group 05	unconfined	SVOC	Phenanthrene	85-01-8	T	4	4	0.0080	0.013	0.017		
Groundwater	AST	Tank Group 05	unconfined	SVOC	Pyrene	129-00-0	T	4	4	0.00016	0.00048	0.00084		
Groundwater	AST	Tank Group 05	unconfined	INORG	Lead	7439-92-1	D	4	2	0.00036	0.00037	0.00038		
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	VOC	Cumene	98-82-8	T	3	1	0.0050	0.0050	0.0050	24	0.00021
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	VOC	Xylenes (total)	1330-20-7	T	3	1	0.026	0.026	0.026	12	0.0022
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	SVOC	Naphthalene	91-20-3	T	3	1	0.014	0.014	0.014	1.3	0.011
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	T	2	1	0.10	0.10	0.10		
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	INORG	Barium	7440-39-3	D	1	1	0.061	0.061	0.061		
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	INORG	Cobalt	7440-48-4	D	2	1	0.017	0.017	0.017		
Groundwater	Evergreen	Tank Group 05	7-14 Fine Sand and Silt	INORG	Vanadium	7440-62-2	D	1	1	0.054	0.054	0.054		
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	1,1-Dichloroethane	75-34-3	T	1	1	0.00060	0.00060	0.00060	1.6	0.00038
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	Ethyl Benzene	100-41-4	T	14	1	0.00081	0.00081	0.00081	0.86	0.00094
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	Methyl tert-butyl ether	1634-04-4	T	14	9	0.00038	0.00088	0.0020	96	0.000021
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	Methylene Chloride	75-09-2	T	1	1	0.00020	0.00020	0.00020	95	0.0000021
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	tert Butyl alcohol	75-65-0	T	4	1	0.0091	0.0091	0.0091		
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	Toluene	108-88-3	T	14	1	0.0015	0.0015	0.0015	430	0.0000035
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	1,2,4-Trimethylbenzene	95-63-6	T	13	1	0.0017	0.0017	0.0017	0.75	0.0023
Groundwater	Evergreen	Tank Group 05	lower aquifer	VOC	Xylenes (total)	1330-20-7	T	14	1	0.0051	0.0051	0.0051	12	0.00043
Groundwater	Evergreen	Tank Group 05	lower aquifer	SVOC	Naphthalene	91-20-3	T	13	1	0.00017	0.00017	0.00017	1.3	0.00013
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Arsenic	7440-38-2	D	6	4	0.0024	0.0043	0.0079		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Arsenic	7440-38-2	T	6	5	0.0065	0.012	0.015		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Cobalt	7440-48-4	D	6	2	0.0024	0.0027	0.0030		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Cobalt	7440-48-4	T	6	6	0.0023	0.0028	0.0030		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Lead	7439-92-1	D	13	2	0.00018	0.0015	0.0029		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Lead	7439-92-1	T	6	3	0.00011	0.00018	0.00028		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Manganese	7439-96-5	D	6	6	0.23	0.54	0.73		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Manganese	7439-96-5	T	6	6	0.24	0.55	0.75		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Mercury	7439-97-6	D	3	1	0.00010	0.00010	0.00010		
Groundwater	Evergreen	Tank Group 05	lower aquifer	INORG	Mercury	7439-97-6	T	3	1	0.000033	0.000033	0.000033		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Benzene	71-43-2	T	133	107	0.00029	8.2	52	0.35	150
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Butylbenzene	104-51-8	T	2	2	0.0034	0.0036	0.0038		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	sec-Butylbenzene	135-98-8	T	33	8	0.0025	0.0076	0.020		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Cumene	98-82-8	T	65	28	0.0012	0.016	0.070	24	0.0029
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Cyclohexane	110-82-7	T	34	30	0.0013	0.31	0.83	53	0.016
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Cyclopentane	287-92-3	T	2	2	0.11	0.12	0.13		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	p-Cymene	99-87-6	T	2	2	0.0030	0.0068	0.011		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2-Dibromoethane	106-93-4	T	65	8	0.000027	0.00026	0.00064	0.044	0.015
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2-Diethylbenzene	135-01-3	T	2	2	0.0028	0.0049	0.0070		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,3-Dimethyl-2-ethylbenzene	2870-04-4	T	2	2	0.026	0.035	0.044		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,4-Dimethyl-2-ethylbenzene	1758-88-9	T	2	2	0.018	0.025	0.031		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2-Dimethyl-4-ethylbenzene	934-80-5	T	2	2	0.027	0.036	0.044		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,3-Dimethyl-4-ethylbenzene	874-41-9	T	2	2	0.017	0.025	0.033		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,2-Dimethylbutane	75-83-2	T	2	2	0.0063	0.010	0.014		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,3-Dimethyl-butane	79-29-8	T	2	2	0.038	0.28	0.52		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	trans-1,2-Dimethylcyclopentane	822-50-4	T	2	2	0.020	0.037	0.053		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,3-Dimethylheptane	3074-71-3	T	2	1	0.037	0.037	0.037		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,4-Dimethylheptane	2213-23-2	T	2	1	0.022	0.022	0.022		

Table 8b

Groundwater VI Screening Summary

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Non-Res GW SHS VI Screening Value (mg/L)	Ratio of Max Detect to Non-Res GW SHS VI Screening Value
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,5-Dimethylheptane	2216-30-0	T	2	1	0.018	0.018	0.018		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,4-Dimethylhexane	589-43-5	T	2	1	0.0055	0.0055	0.0055		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,5-Dimethylhexane	592-13-2	T	2	1	0.0034	0.0034	0.0034		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,3-Dimethylpentane	565-59-3	T	2	1	0.015	0.015	0.015		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3,3-Dimethylpentane	562-49-2	T	2	1	0.0015	0.0015	0.0015		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Ethyl Benzene	100-41-4	T	133	100	0.00067	0.68	3.2	0.86	3.7
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Ethyl-3-methyl-benzene	620-14-4	T	2	2	0.020	0.047	0.074		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	5-Ethyl-m-xylene	934-74-7	T	2	2	0.020	0.030	0.041		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-Ethyl-o-xylene	933-98-2	T	2	2	0.0058	0.0090	0.012		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Ethylthiophene	872-55-9	T	2	2	0.0013	0.0018	0.0024		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	4-Ethyltoluene	622-96-8	T	2	2	0.048	0.065	0.082		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Heptane	142-82-5	T	2	2	0.012	0.021	0.030		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Hexane	110-54-3	T	33	23	0.0020	0.28	0.98	6.2	0.16
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Hexene	592-41-6	T	2	1	0.0052	0.0052	0.0052		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	cis-2-Hexene	7688-21-3	T	2	2	0.0032	0.0077	0.012		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	trans-2-Hexene	4050-45-7	T	2	2	0.0015	0.0025	0.0034		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Indane	496-11-7	T	2	2	0.071	0.099	0.13		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Indene	95-13-6	T	2	2	0.013	0.014	0.014		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Isopentane	78-78-4	T	2	2	0.21	0.27	0.33		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Methyl tert-butyl ether	1634-04-4	T	82	23	0.00037	1.4	5.2	96	0.054
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methyl-1-butene	563-46-2	T	2	1	0.014	0.014	0.014		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-2-ethylbenzene	611-14-3	T	2	2	0.073	0.10	0.12		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-2-isopropylbenzene	527-84-4	T	2	2	0.0012	0.0029	0.0047		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-2-n-propylbenzene	1074-17-5	T	2	2	0.0082	0.013	0.017		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methyl-2-pentene	625-27-4	T	2	2	0.014	0.016	0.019		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	cis-3-Methyl-2-pentene	922-62-3	T	2	2	0.0052	0.0071	0.0090		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-3-isopropylbenzene	535-77-3	T	2	2	0.0058	0.0099	0.014		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-3-n-propylbenzene	1074-43-7	T	2	2	0.0089	0.011	0.012		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1-Methyl-4-n-Propylbenzene	1074-55-1	T	2	2	0.0061	0.0090	0.012		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Methylcyclohexane	108-87-2	T	3	3	0.012	0.13	0.25		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Methylcyclopentane	96-37-7	T	2	2	0.18	0.22	0.25		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Methylene Chloride	75-09-2	T	5	1	0.020	0.020	0.020	95	0.00021
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methylheptane	592-27-8	T	2	2	0.0022	0.010	0.018		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-Methylheptane	589-81-1	T	2	1	0.015	0.015	0.015		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	4-Methylheptane	589-53-7	T	2	1	0.0044	0.0044	0.0044		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methylhexane	591-76-4	T	2	1	0.023	0.023	0.023		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-methylhexane	589-34-4	T	2	2	0.015	0.022	0.030		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methyloctane	3221-61-2	T	2	1	0.012	0.012	0.012		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-Methyloctane	2216-33-3	T	2	1	0.023	0.023	0.023		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	4-Methyloctane	2216-34-4	T	2	1	0.014	0.014	0.014		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-methylpentane	96-14-0	T	2	2	0.058	0.074	0.089		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2-Methyl-Pentane	107-83-5	T	2	1	0.095	0.10	0.095		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	3-Methylthiophene	616-44-4	T	2	1	0.0072	0.0072	0.0072		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Octane	111-65-9	T	2	1	0.016	0.016	0.016		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Pentane	109-66-0	T	2	2	0.10	0.31	0.52		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	cis-2-Pentene	627-20-3	T	2	2	0.016	0.043	0.069		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	trans-2-Pentene	646-04-8	T	2	2	0.033	0.055	0.076		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Pentylbenzene	538-68-1	T	2	1	0.0028	0.0028	0.0028		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Propylbenzene	103-65-1	T	2	2	0.034	0.035	0.036	52	0.00068
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Styrene	100-42-5	T	3	1	0.0023	0.0023	0.0023	220	0.000010
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	tert Butyl alcohol	75-65-0	T	14	5	0.063	0.17	0.36		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2,3,5-Tetramethylbenzene	527-53-7	T	2	2	0.030	0.036	0.042		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2,3,4-Tetramethylbenzene	488-23-3	T	2	2	0.023	0.029	0.036		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2,4,5-Tetramethylbenzene	95-93-2	T	2	2	0.019	0.022	0.025		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Thiophene	110-02-1	T	2	2	0.0025	0.017	0.032		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Toluene	108-88-3	T	133	98	0.00033	3.5	14	430	0.033
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,2,4-Trimethylbenzene	95-63-6	T	63	49	0.00028	0.45	1.4	0.75	1.8
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	1,3,5-Trimethylbenzene	108-67-8	T	63	39	0.00023	0.18	0.50	1.2	0.42
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,3,3-Trimethylpentane	560-21-4	T	2	1	0.0052	0.0052	0.0052		
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	2,3,4-Trimethylpentane	565-75-3	T	2	1	0.0056	0.0056	0.0056		

Table 8b
Groundwater VI Screening Summary
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Non-Res GW SHS VI Screening Value (mg/L)	Ratio of Max Detect to Non-Res GW SHS VI Screening Value
Groundwater	Evergreen	Tank Group 05	unconfined	VOC	Xylenes (total)	1330-20-7	T	133	100	0.0019	4.0	20	12	1.7
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Acenaphthene	83-32-9	T	31	30	0.00013	0.020	0.15		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Anthracene	120-12-7	T	59	31	0.000038	0.0067	0.035		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Benzo(a)anthracene	56-55-3	T	72	13	0.000058	0.00033	0.0016		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Benzo(a)pyrene	50-32-8	T	72	9	0.000060	0.00014	0.00035		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Benzo(b)fluoranthene	205-99-2	T	72	8	0.00010	0.00019	0.00043		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Benzo(g,h,i)perylene	191-24-2	T	59	8	0.000056	0.00018	0.00046		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Benzo(k)fluoranthene	207-08-9	T	31	1	0.00013	0.00013	0.00013		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	1,1-Biphenyl	92-52-4	T	31	6	0.013	0.071	0.18	0.97	0.19
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Chrysene	218-01-9	T	74	14	0.000048	0.00038	0.0017		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Dibenz(a,h)anthracene	53-70-3	T	44	1	0.00013	0.00013	0.00013		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	2,4-Dimethylphenol	105-67-9	T	31	13	0.012	0.033	0.0958		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Fluoranthene	206-44-0	T	31	16	0.000067	0.00	0.0065		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Fluorene	86-73-7	T	61	49	0.00010	0.02	0.11		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	44	3	0.000051	0.0001	0.00019		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	1-Methylnaphthalene	90-12-0	T	2	2	0.055	0.084	0.11		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	2-Methylnaphthalene	91-57-6	T	33	32	0.00054	0.298	1.8	4.8	0.37
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	2-Methylphenol	95-48-7	T	31	8	0.010	0.026	0.056		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	3&4-Methylphenol	65794-96-9	T	31	4	0.010	0.033	0.059		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Naphthalene	91-20-3	T	63	46	0.00015	0.202	1.1	1.3	0.82
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Phenanthrene	85-01-8	T	61	51	0.000080	0.048	0.45		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Phenol	108-95-2	T	31	12	0.012	0.027	0.046	84000	0.00000055
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	T	44	16	0.0030	0.028	0.089		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Di-n-butylphthalate	84-74-2	T	31	2	0.0053	0.01	0.011		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Pyrene	129-00-0	T	61	45	0.000053	0.0037	0.028		
Groundwater	Evergreen	Tank Group 05	unconfined	SVOC	Pyridine	110-86-1	T	31	2	0.013	0.0147	0.017		
Groundwater	Evergreen	Tank Group 05	unconfined	PSHC	Decane	124-18-5	T	2	2	0.0058	0.007	0.0073		
Groundwater	Evergreen	Tank Group 05	unconfined	PSHC	Dodecane	112-40-3	T	2	2	0.0086	0.02	0.025		
Groundwater	Evergreen	Tank Group 05	unconfined	PSHC	Nonane	111-84-2	T	2	1	0.0089	0.0089	0.0089		
Groundwater	Evergreen	Tank Group 05	unconfined	PSHC	Undecane	1120-21-4	T	2	2	0.0039	0.01	0.0066		
Groundwater	Evergreen	Tank Group 05	unconfined	OTHER	Benzothiophene	11095-43-5	T	2	2	0.017	0.020	0.024		
Groundwater	Evergreen	Tank Group 05	unconfined	OTHER	BUTENE, 2-METHYL-	26760-64-5	T	2	2	0.073	0.35	0.62		
Groundwater	Evergreen	Tank Group 05	unconfined	OTHER	CIS-1,3-DIMETHYLCYCLOPENTANE	2532-58-3	T	2	2	0.0056	0.009	0.013		
Groundwater	Evergreen	Tank Group 05	unconfined	OTHER	TRANS-1,3-DIMETHYLCYCLOPENTANE	2453-00-1	T	2	2	0.018	0.0282	0.038		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Arsenic	7440-38-2	D	32	20	0.0016	0.0104	0.028		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Arsenic	7440-38-2	T	5	5	0.0047	0.074	0.18		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Barium	7440-39-3	D	12	12	0.041	0.321	0.97		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Chromium (total)	7440-47-3	D	12	9	0.053	0.3380	0.94		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Chromium III	16065-83-1	D	9	1	0.0081	0.0081	0.0081		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Chromium VI	18540-29-9	D	9	1	0.0049	0.005	0.0049		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Cobalt	7440-48-4	D	44	21	0.0021	0.026	0.15		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Copper	7440-50-8	D	9	7	0.0015	0.00	0.0044		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Copper	7440-50-8	T	5	1	0.14	0.14	0.14		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Lead	7439-92-1	D	71	5	0.00017	0.001	0.0019		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Lead	7439-92-1	T	18	13	0.0031	0.059	0.21		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Mercury	7439-97-6	D	9	4	0.00012	0.0001	0.00017		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Nickel	7440-02-0	D	40	19	0.0020	0.005	0.015		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Zinc	7440-66-6	D	35	8	0.0047	0.03	0.071		
Groundwater	Evergreen	Tank Group 05	unconfined	INORG	Zinc	7440-66-6	T	5	1	0.09	0.09	0.085		

Notes:
Only chemicals detected in the area are shown.
The criteria for Benzo(g,h,i)perylene are the criteria provided by the agency for Pyrene.
The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI.
The criteria for 2-Methylnaphthalene are the criteria provided by the agency for Naphthalene.
The criteria for Phenanthrene are the criteria provided by the agency for Pyrene.
The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).
Ratios of concentration to the RBSLs greater than 1 are shaded in bold.
Chem Group - chemical group
Meas Basis - measured basis; T = total, D = dissolved

Table 9
Summary of Recent LNAPL Gauging and Comparison to Historical Conditions
Tank Group 05 Area
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

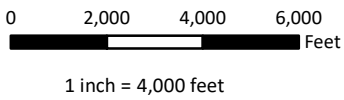
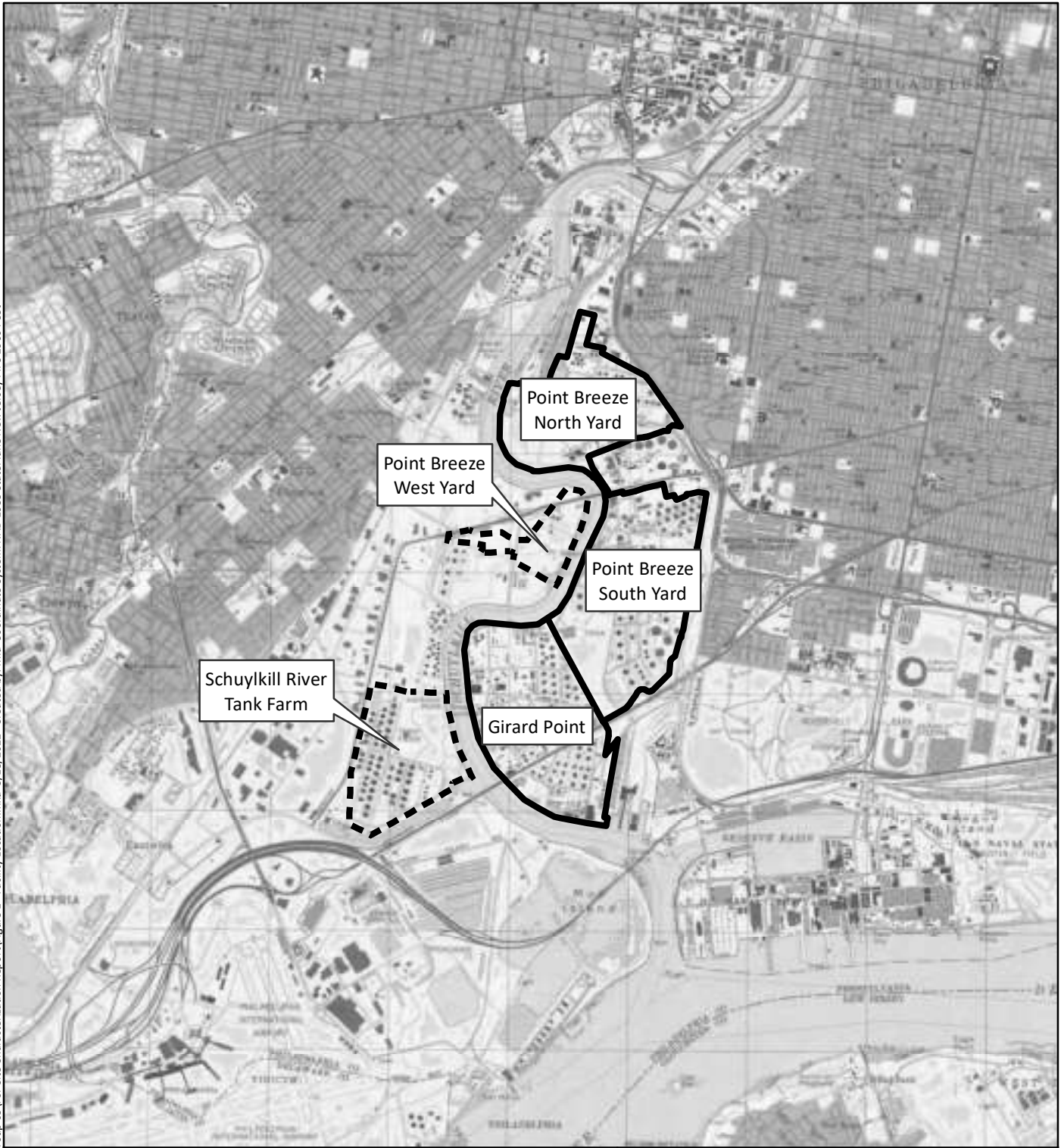
Location	Evergreen					PESRM			Less Than Historically Observed Max
	Most Recent LNAPL Thickness (ft)	Most Recent Date Measured	Min LNAPL Thickness (ft)	Max LNAPL Thickness (ft)	Date Range	Date Measured	LNAPL Thickness (ft)	Notes	
RW-700	0	07/11/2022	0	11.28	10/21/2010 - 7/11/2022	10/13/2022	?	Sealed, Inaccessible	--
RW-701	0	07/11/2022	0	1.42	10/21/2010 - 7/11/2022	10/13/2022	?	Sealed, Inaccessible	--
RW-702	0	07/11/2022	0	0	10/21/2010 - 7/11/2022	10/13/2022	0		Yes
RW-703	0	07/11/2022	0.02	1.58	10/21/2010 - 7/11/2022	10/13/2022	0		Yes
RW-704	0	07/11/2022	0	0.37	10/21/2010 - 7/11/2022	10/13/2022	?	Sealed, Inaccessible	--
RW-705	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-706	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	?	Sealed, Inaccessible	--
RW-707	0	07/07/2022	0.01	0.12	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-708	0	07/07/2022	0	0.87	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-709	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	?	Sealed, Inaccessible	--
RW-710	0.01	07/07/2022	0.01	0.01	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-711	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-712	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-713	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-714	0	07/07/2022	0	0.50	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-715	0	07/07/2022	0	0	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-716	0	07/07/2022	0.01	0.99	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
RW-717	0	07/07/2022	0	0.01	10/21/2010 - 7/7/2022	10/13/2022	0		Yes
S-124	0	03/01/2022	0	1.92	9/3/2002 - 3/1/2022	10/13/2022	0.39		Yes
S-221	0.09	07/11/2022	0	2.37	5/10/2005 - 7/11/2022	10/13/2022	1.04		Yes
S-222	0	03/01/2022	0	0	1/18/2006 - 3/1/2022	10/13/2022	0		Yes
S-223	0	04/05/2022	0	0	1/18/2006 - 4/5/2022	10/13/2022	0		Yes
S-233	0.06	03/01/2022	0.01	1.93	5/10/2006 - 3/1/2022	10/13/2022	0.05		Yes
S-235	0.33	03/01/2022	0	2.23	5/10/2006 - 3/1/2022	10/13/2022	0.92		Yes
S-236	0.53	07/11/2022	0	2.24	5/10/2006 - 7/11/2022	10/13/2022	0.87		Yes
S-237	0.11	07/11/2022	0	2.29	5/10/2006 - 7/11/2022	10/13/2022	0.79		Yes
S-239	0	03/01/2022	0	0	5/10/2006 - 3/1/2022	10/13/2022	0		Yes
S-240	2.00	03/01/2022	0.14	2.57	5/10/2006 - 3/1/2022	10/13/2022	2.55		Yes
S-241	1.73	03/01/2022	0.76	3.49	5/10/2006 - 3/1/2022	10/13/2022	1.85		Yes
S-242	0	03/03/2022	0	0	11/25/2008 - 3/3/2022	10/13/2022	?	Removed	--
S-243	0	03/01/2022	0	0	11/25/2008 - 3/1/2022	10/13/2022	?	Dry	--
S-245	0	03/01/2022	0	0	11/25/2008 - 3/1/2022	10/13/2022	0		Yes
S-246	0	03/01/2022	0	0	11/15/2007 - 3/1/2022	10/13/2022	0		Yes
S-26	0	03/01/2022	0	0	12/13/1995 - 3/1/2022	10/13/2022	?	Removed; Location grouted	--
S-27	0	03/02/2022	0	0	12/13/1995 - 3/2/2022	10/13/2022	?	Removed; Location grouted	--
S-278	0	03/01/2022	0	1.28	6/12/2013 - 3/1/2022	10/13/2022	?	Inaccessible; Under gravel ramp	--
S-279	0	03/01/2022	0	0.86	5/8/2012 - 3/1/2022	10/13/2022	?	Removed; Location grouted	--
S-329	0	03/01/2022	0	0.0	10/21/2010 - 3/1/2022	10/13/2022	0		Yes
S-373	0.01	03/03/2022	0.01	0.37	6/12/2013 - 3/3/2022	10/13/2022	?	Inaccessible; Under gravel	--
S-408	0	03/02/2022	0	0	12/8/2015 - 3/2/2022	10/13/2022	0		Yes
TG05-MW-01	--	--	--	--	--	10/13/2022	1.89	New monitoring well	--

Figures

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- 2 Site Location Map
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- 4b Historical Subsurface Soil Sampling Results (Tank Group 05)
- 4c Historical Groundwater Sampling Results and LNAPL (Tank Group 05)
- 5a Site Assessment, Site Characterization and Historical Soil Sampling Results (Tank Group 05 – Northern Portion)
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- 6a Surface Soil Sampling Results, Tank Group 05 (Benzene)
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- 8 Site Characterization Groundwater and LNAPL Results (Tank Group 05 Area)
- 9 Interpreted Potentiometric Surface (October 13, 2022)
- 10 Most Recent LNAPL Thickness (Tank Group 05 Area)
- 11a Soil Locations with Conc > PADEP NonRes Soil VISLs (Tank Group 05 – Northern Portion)
- 11b Soil Locations with Conc > PADEP NonRes Soil VISLs (Tank Group 05 – Southern Portion)
- 11c Monitoring Well Locations with Conc > PADEP NonRes Groundwater VISLs (Tank Group 05)



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Legend

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

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

SAFETY FIRST



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure








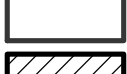

PROJECT NUMBER: P044.001.002


Facility Location

Figure 1

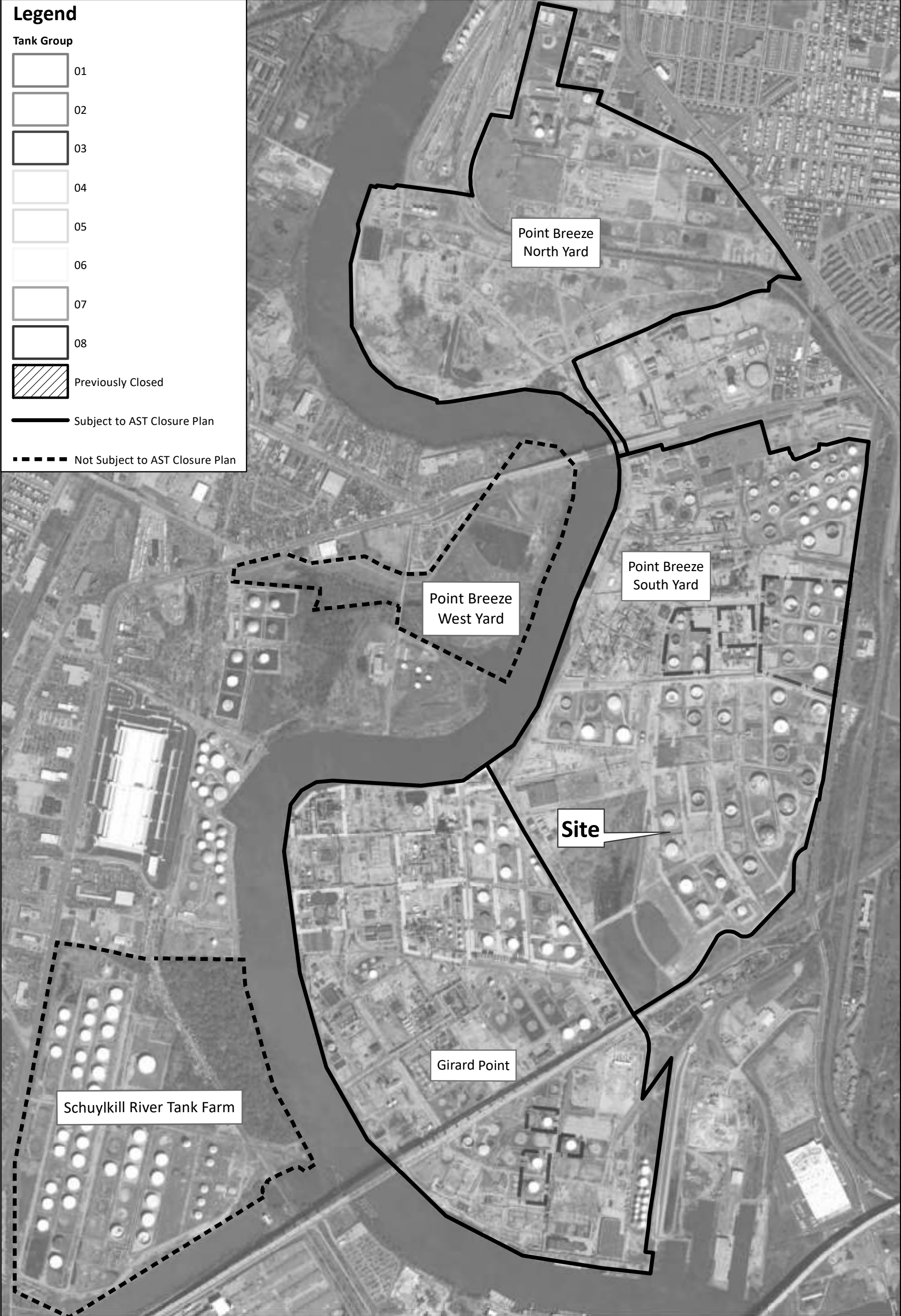
Legend

Tank Group

-  01
-  02
-  03
-  04
-  05
-  06
-  07
-  08
-  Previously Closed

 Subject to AST Closure Plan

 Not Subject to AST Closure Plan




File: N:\GIS\PI\P044_001_PESRM-PES\WXDS\AST Work\Tank Group 05\For Site Characterization Report\Figure 2 - Site Location.mxd Created by: Mia Coordinate System: NAD_1983_StatePlane_Pennsylvania_South_FIPS_3702 Feet

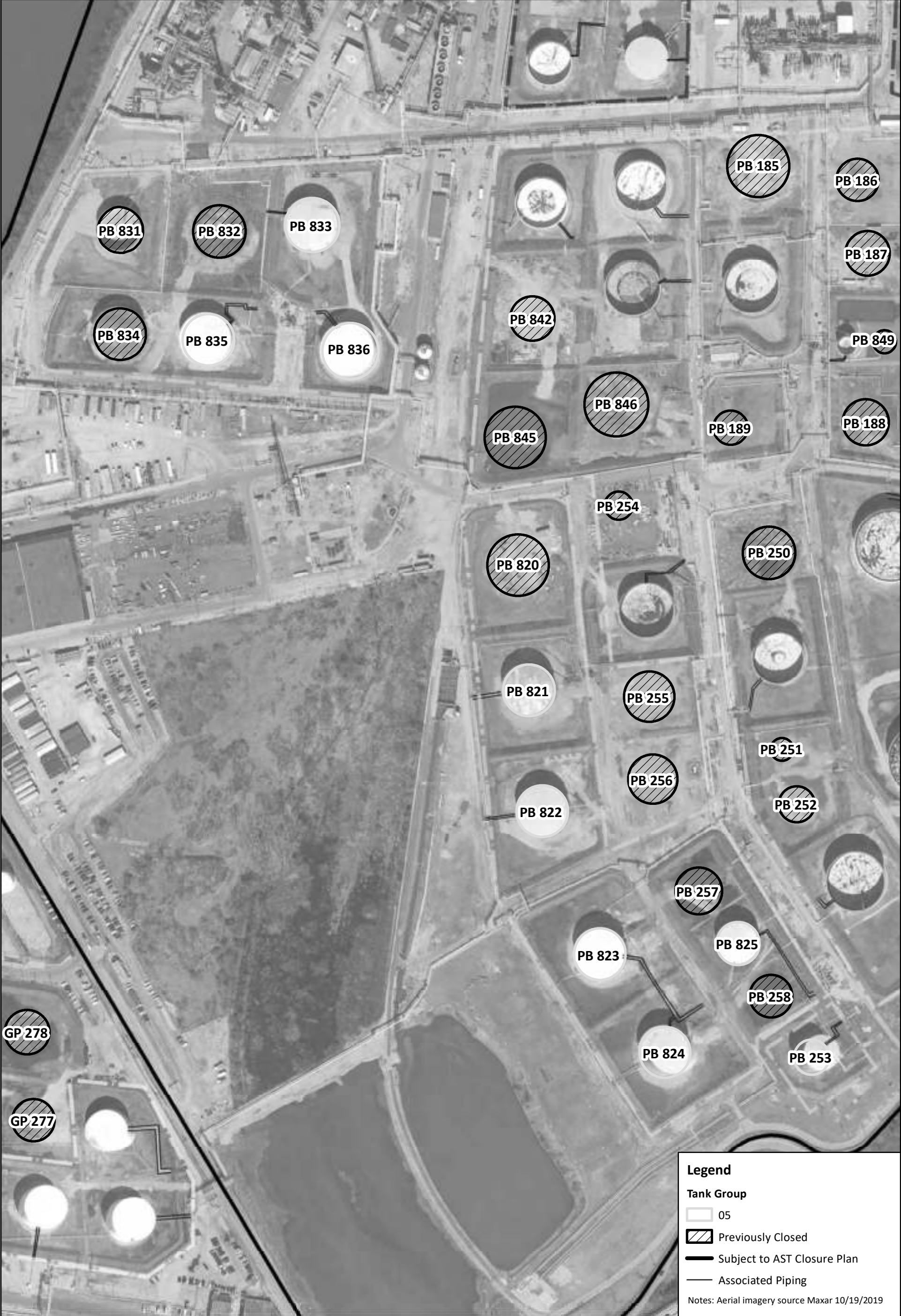


0 500 1,000 1,500
Feet
1 inch = 1,000 feet

Notes: Aerial imagery source Maxar 10/19/2019

SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	Figure 2

File: N:\GIS\Projects\044_001_PESRM-PES\WXDS\AST\Work\Tank\Group 05\For Site Characterization Report\Figure 3 - Site Layout Map.mxd 11/16/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

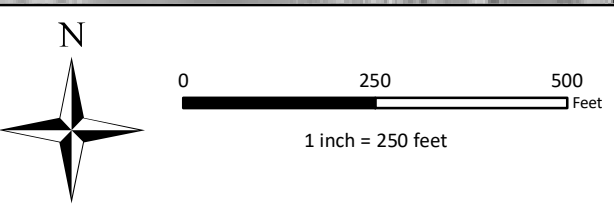


Legend

Tank Group

- 05
- Previously Closed
- Subject to AST Closure Plan
- Associated Piping

Notes: Aerial imagery source Maxar 10/19/2019



SAFETY FIRST

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

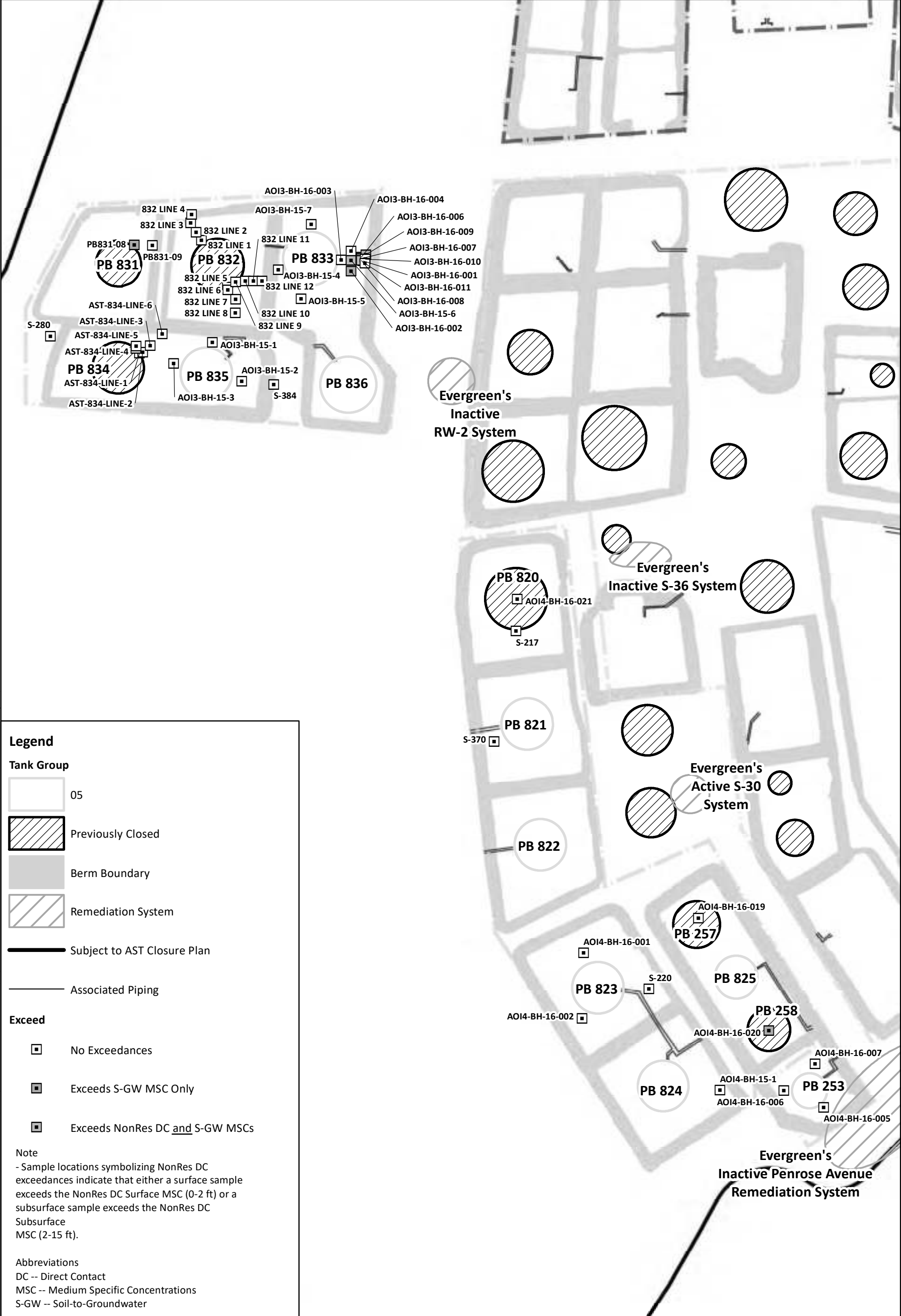
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Layout Map
Tank Group 05

Figure 3

File: N:\GIS\PI\P044_001_PESRM-PES\WXS\AST\Work\Tank Group 05\For Site Characterization Report\Figure 4a - Historical Surface Soil Sampling Results.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Tank Group

- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Subject to AST Closure Plan
- Associated Piping

Exceed

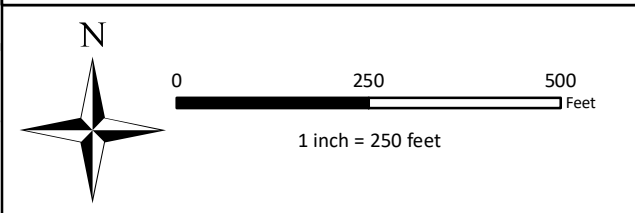
- No Exceedances
- Exceeds S-GW MSC Only
- Exceeds NonRes DC and S-GW MSCs

Note

- Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Abbreviations

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



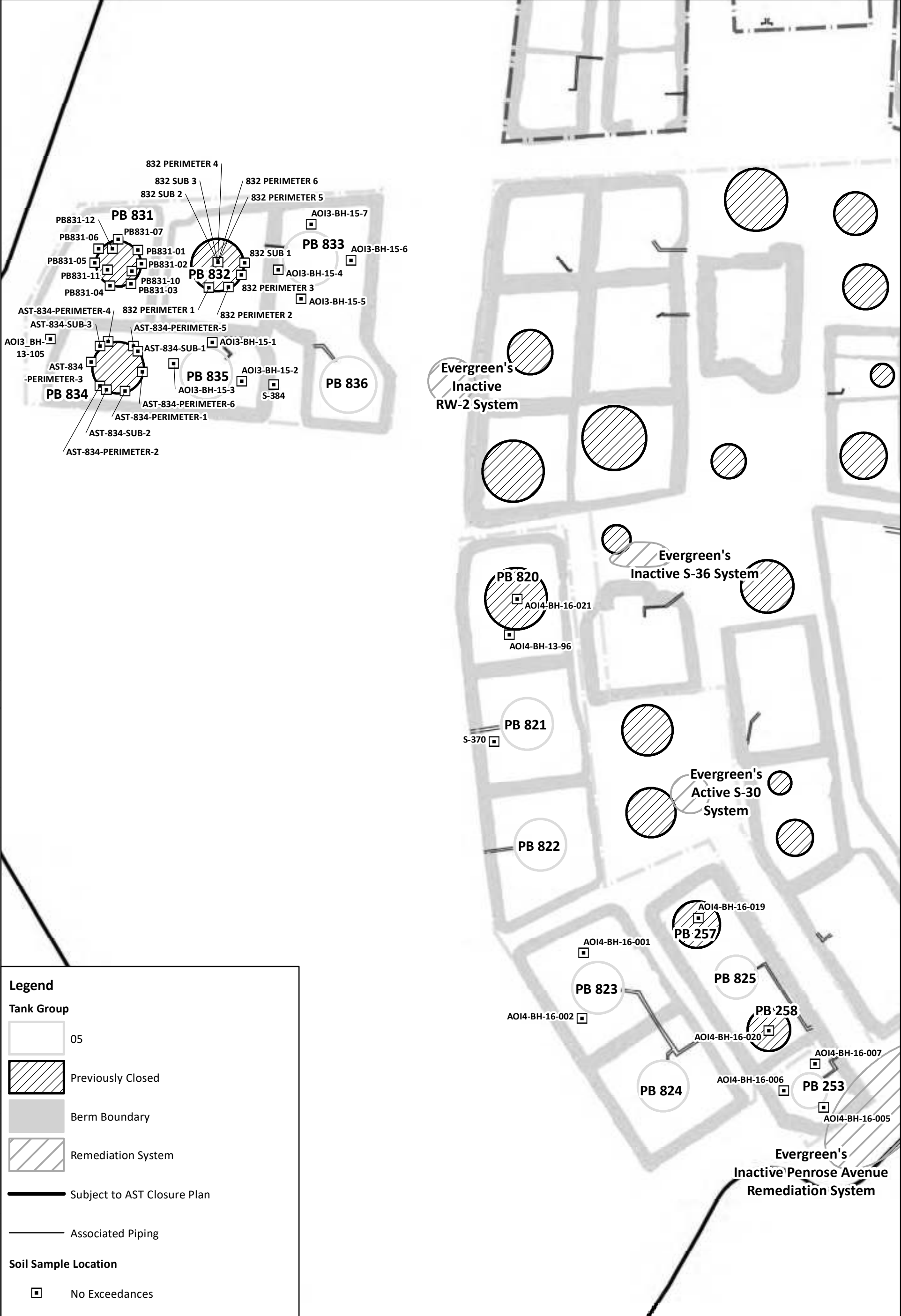
SAFETY FIRST

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Historical Surface Soil Sampling Results Tank Group 05

Figure 4a

File: N:\GIS\Projects\044_001_PESRM-PES\WXD\AST\Work\Tank Group 05\For Site Characterization Report\Figure 4b - Historical Subsurface Soil Sampling Results.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



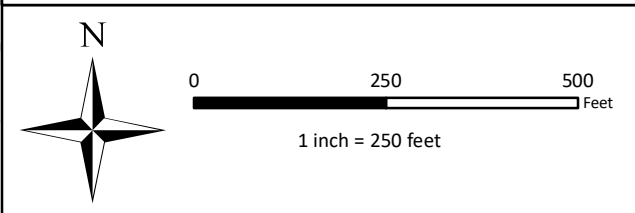
Legend

Tank Group

- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Subject to AST Closure Plan
- Associated Piping

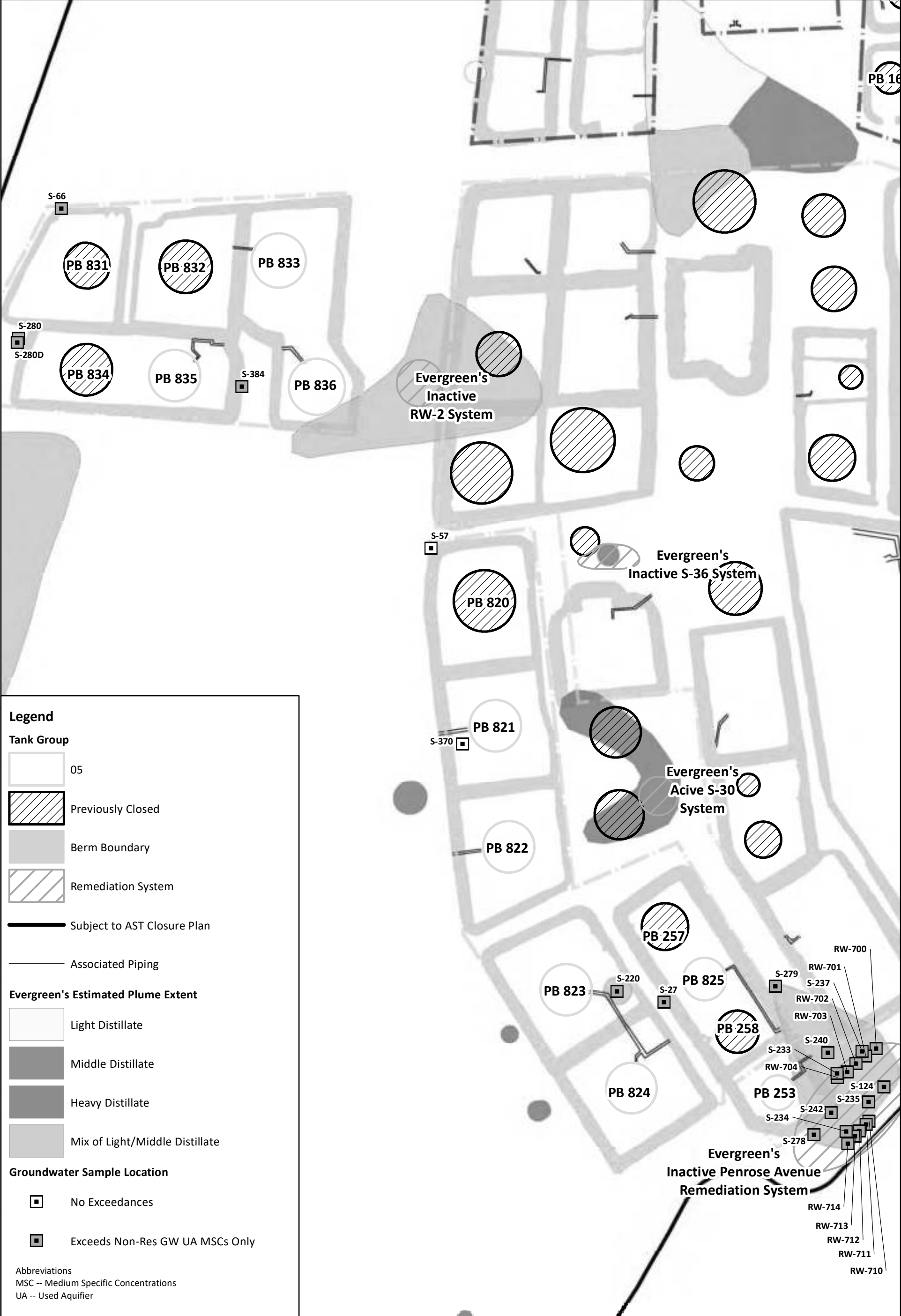
Soil Sample Location

- No Exceedances



SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Historical Subsurface Soil Sampling Results Tank Group 05
	PROJECT: Aboveground Storage Tank Closure	
		PROJECT NUMBER: P044.001.002

File: N:\GIS\Projects\044_001_PESRM-PES\MXDs\AST Work\Tank Group 05\Fig 4c - Historical Groundwater Sampling Results and NAPL.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Tank Group

- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Subject to AST Closure Plan
- Associated Piping

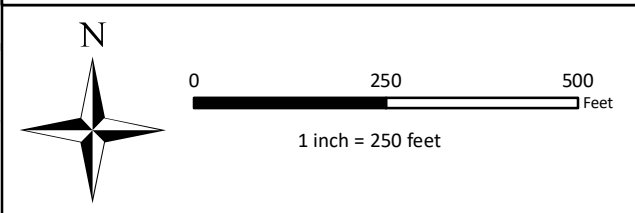
Evergreen's Estimated Plume Extent

- Light Distillate
- Middle Distillate
- Heavy Distillate
- Mix of Light/Middle Distillate

Groundwater Sample Location

- No Exceedances
- Exceeds Non-Res GW UA MSCs Only

Abbreviations
 MSC -- Medium Specific Concentrations
 UA -- Used Aquifer



SAFETY FIRST

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

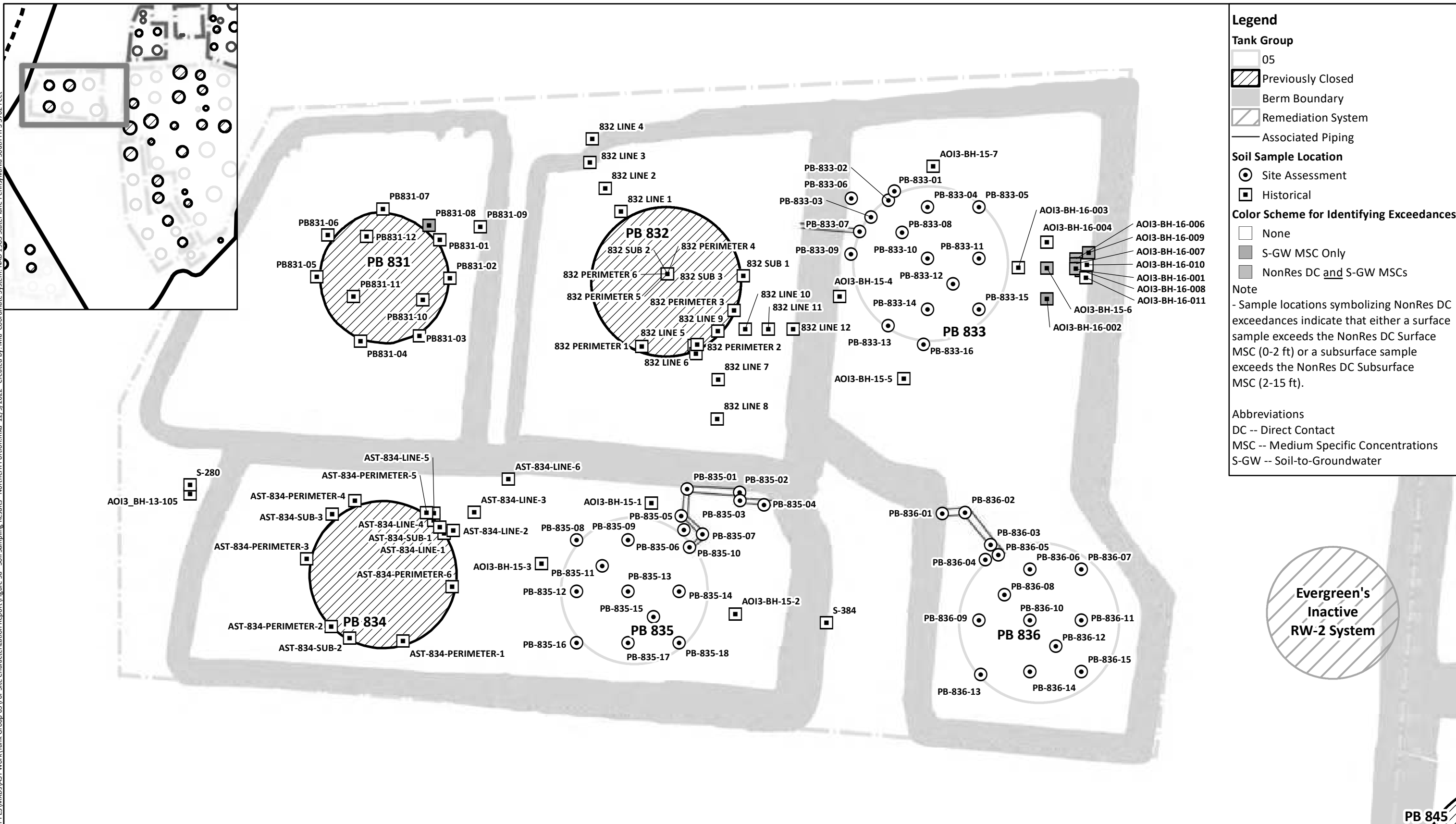
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Historical Groundwater Sampling Results and NAPL Tank Group 05

Figure 4c

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXS\AST\Work\Tank Group 05\For Site Characterization Report\Figure 5a - Soil Sampling Results - Northern Portion.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Tank Group

- 05
- ▨ Previously Closed
- ▭ Berm Boundary
- ▭ Remediation System
- Associated Piping

Soil Sample Location

- Site Assessment
- Historical

Color Scheme for Identifying Exceedances

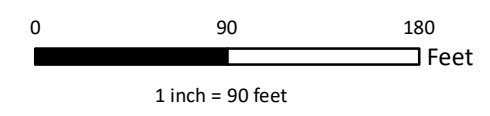
- None
- ▭ S-GW MSC Only
- ▭ NonRes DC and S-GW MSCs

Note

- Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Abbreviations

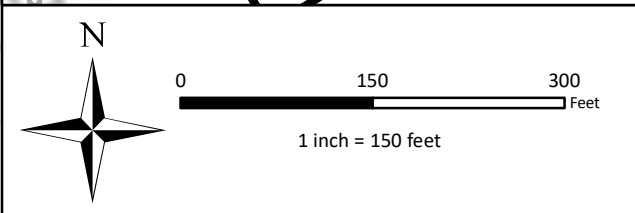
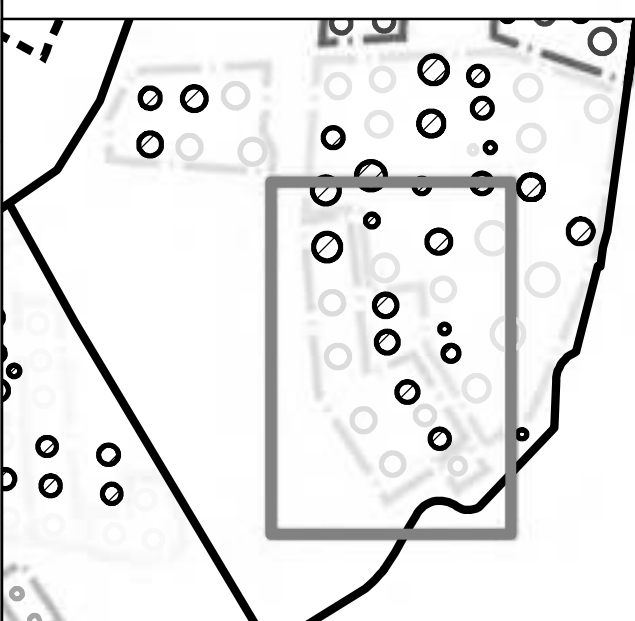
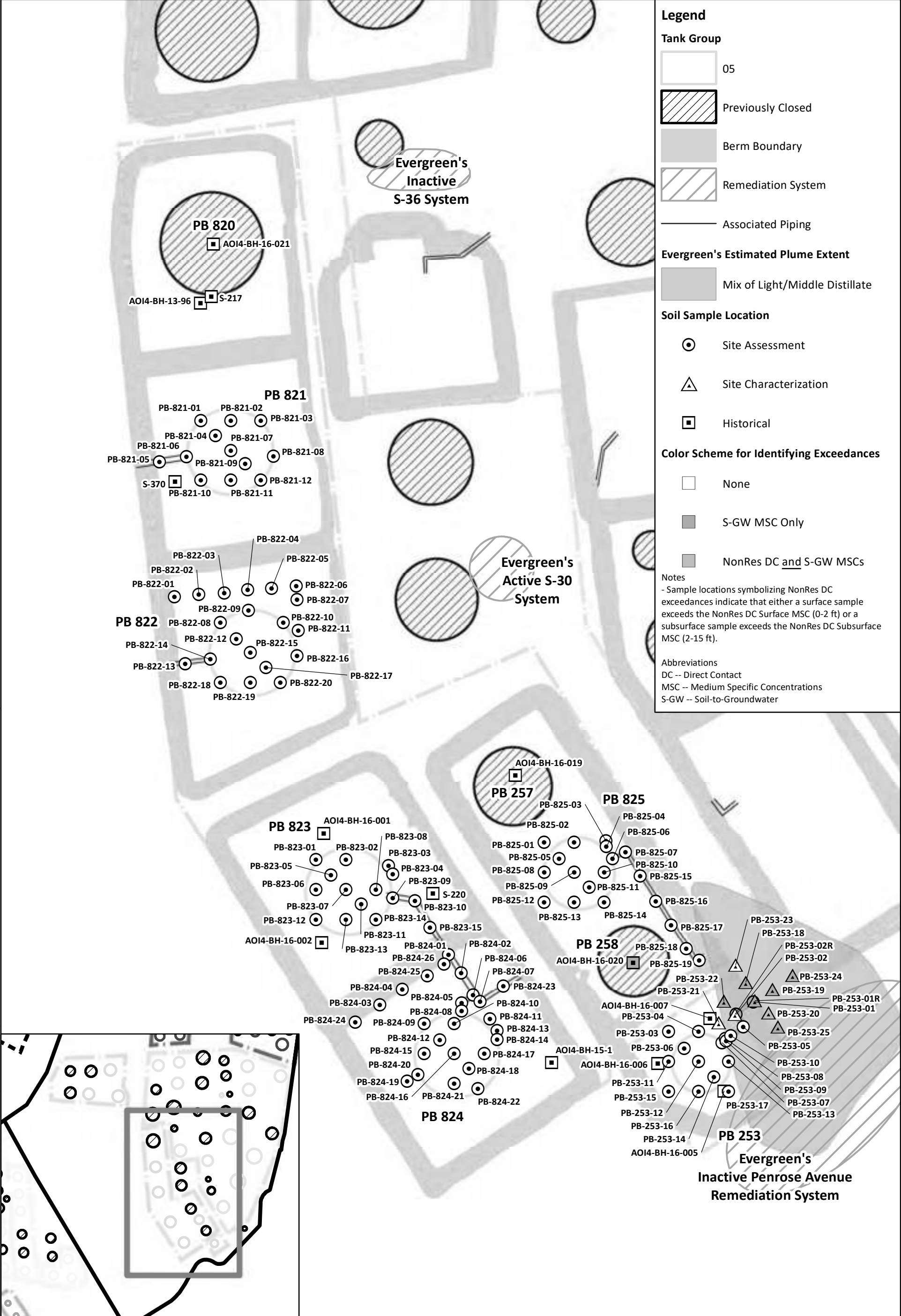
DC -- Direct Contact
 MSC -- Medium Specific Concentrations
 S-GW -- Soil-to-Groundwater



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Assessment, Site Characterization, and Historical Soil Sampling Results Tank Group 05 - Northern Portion
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

Figure 5a

File: N:\GIS\Projects\0404_001_PESRM-PES\Work\AST\Work\Tank Group 05\For Site Characterization Report\Figure Eb - Soil Sampling Results - Southern Portion.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



SAFETY FIRST

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

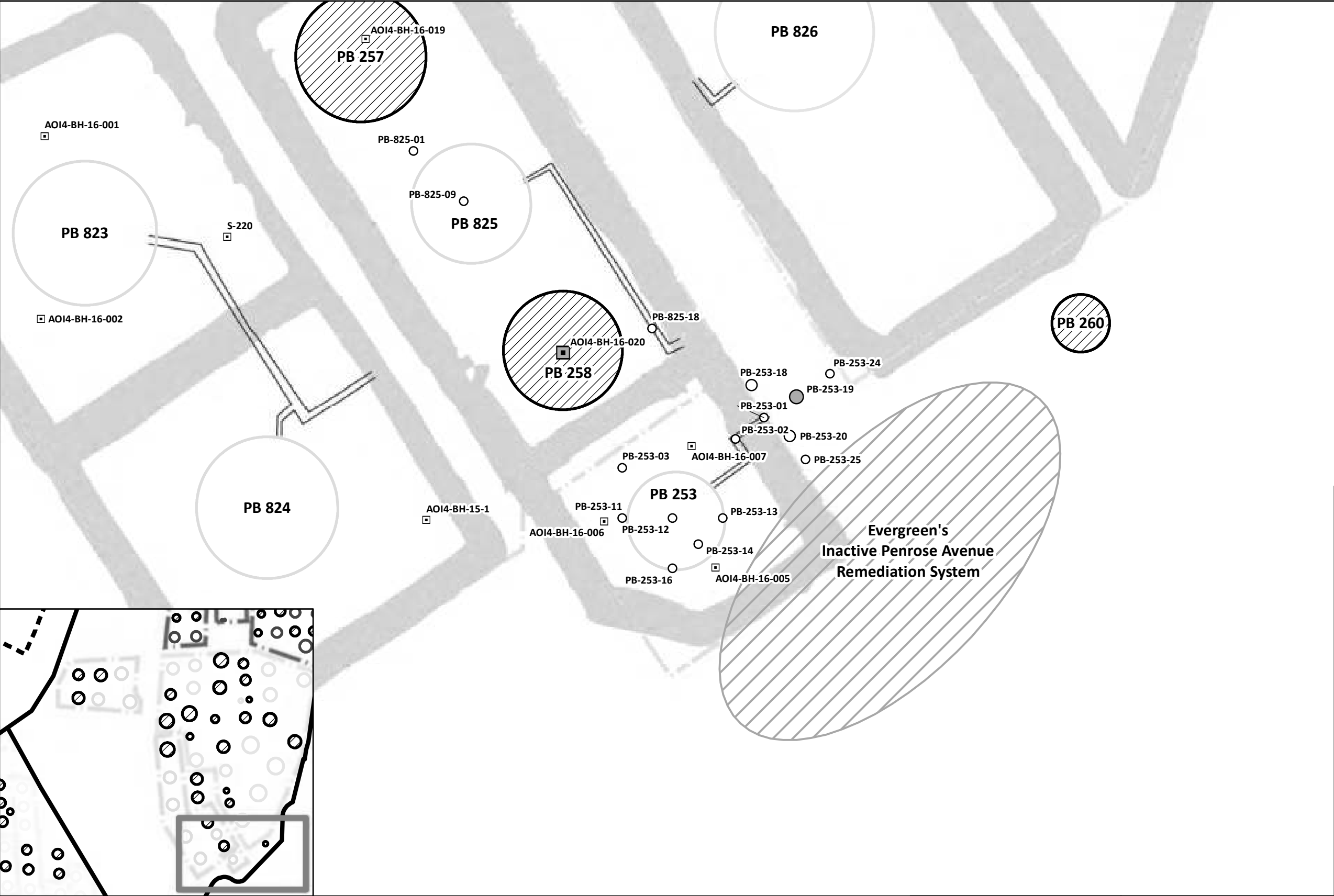
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Assessment, Site Characterization, and Historical Soil Sampling Results Tank Group 05 - Southern Portion

Figure 5b

File: N:\GIS\Prj\PO44_001_PESRM-PBS\MapDocs\AST\Work\Group 05\20221201_Site Characterization - MSC_D\andUsed withEvergreen_MaxResultsByChem\20221205\Figure 6a - TG05 - MSC_D\andUsed_MaxResultsByChem-Benz_Surf.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 S



Legend

Tank Group

- 04
- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Associated Piping

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

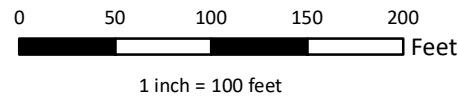
- No Exceedances

Note

- Sample location size symbolizes relative concentration

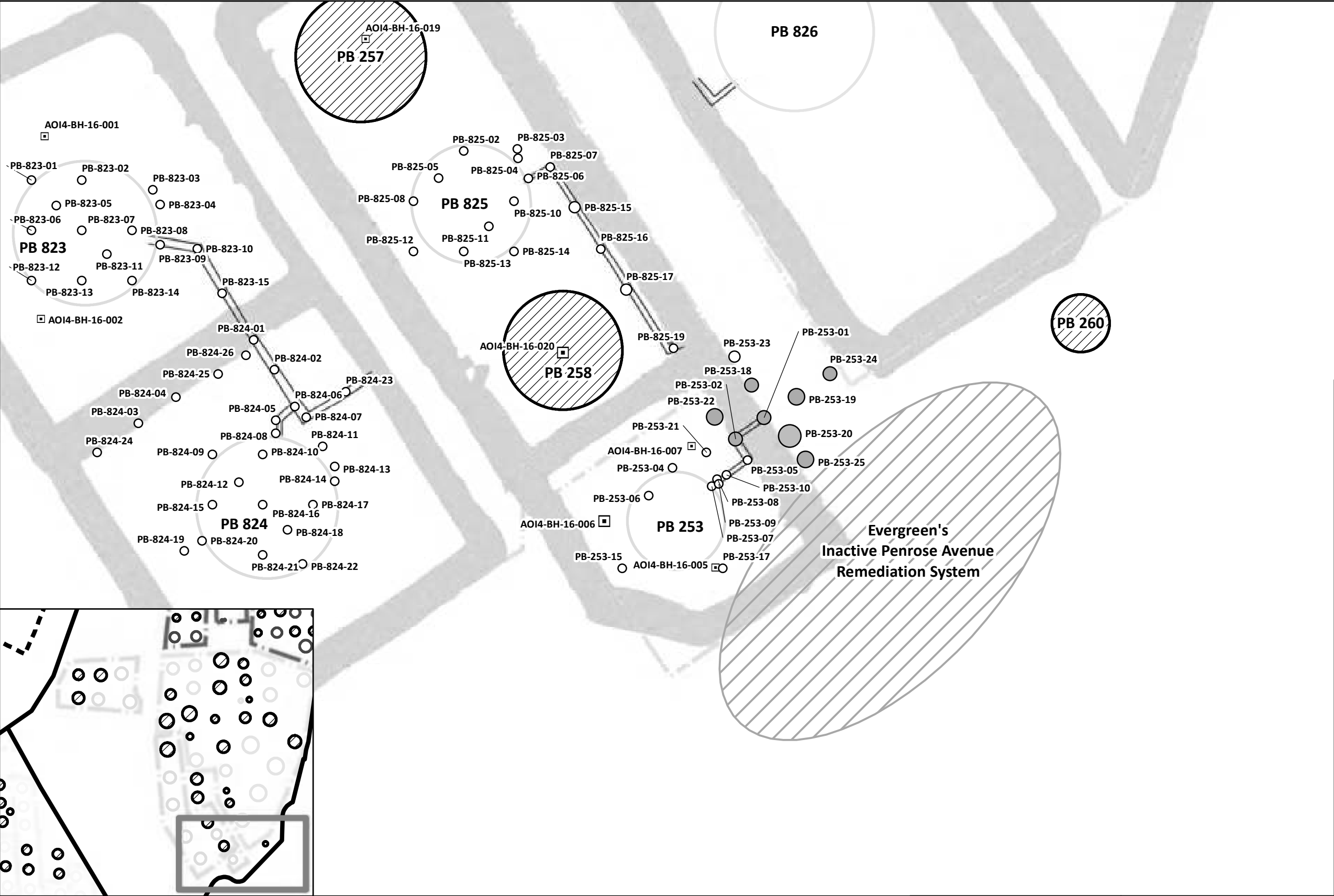
Abbreviations

MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 05 (Benzene) Figure 6a
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Prj\PO44_001_PESRM-PBS\MapDocs\AST\Work\Group 05\20221201_Site Characterization - MSC_D\andUsed withEvergreen_MaxResultsByChem\20221205\Figure 6b - TG05 - MSC_D\andUsed withEvergreen_MaxResultsByChem_Benz_Sub.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 S



Legend

Tank Group

- 04
- 05
- ▨ Previously Closed
- ▭ Berm Boundary
- ▨ Remediation System
- Associated Piping

PESRM Soil Sample Location

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

Historical Soil Sample Location

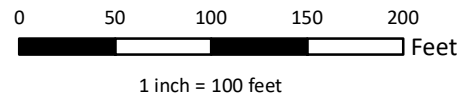
- ▣ No Exceedances

Notes

- Sample location size symbolizes relative concentration
- Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC SubsurfaceMSC (2-15 ft)

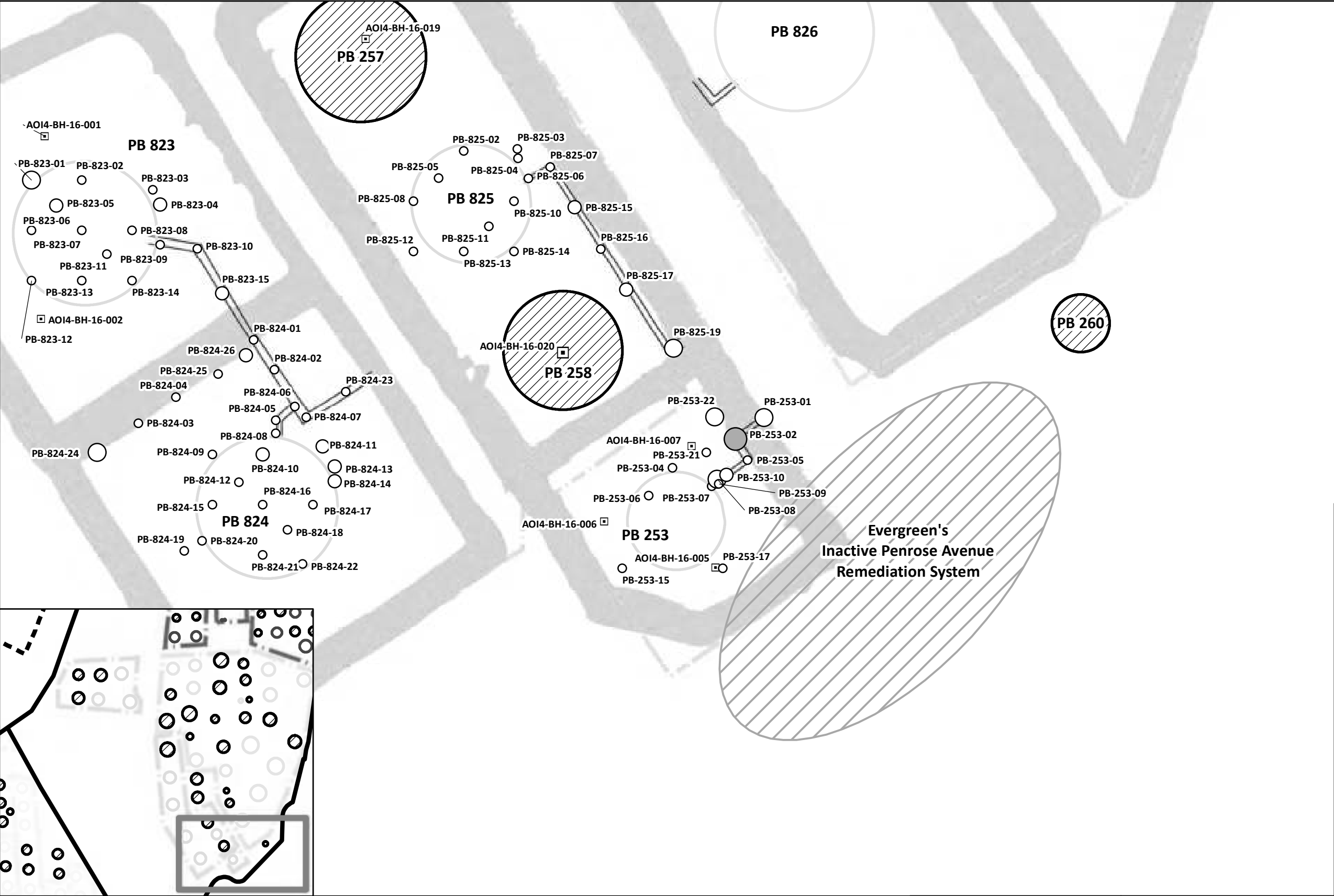
Abbreviations

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



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 05 (Benzene) Figure 6b
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Prj\PO44_001_PESRM-PBS\MapDocs\AST\Work\Group 05\20221201_Site Characterization_MSC_D\CanUsed withEvergreen_MaxResultsByChem(20221205) Figure 7 - TG05_MSC_D\CanUsed withEvergreen_MaxResultsByChem_Nap_Sub.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 State



Legend

Tank Group

- 04
- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Associated Piping

PESRM Soil Sample Location

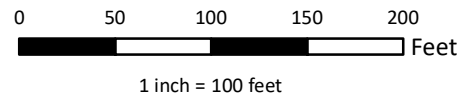
- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances

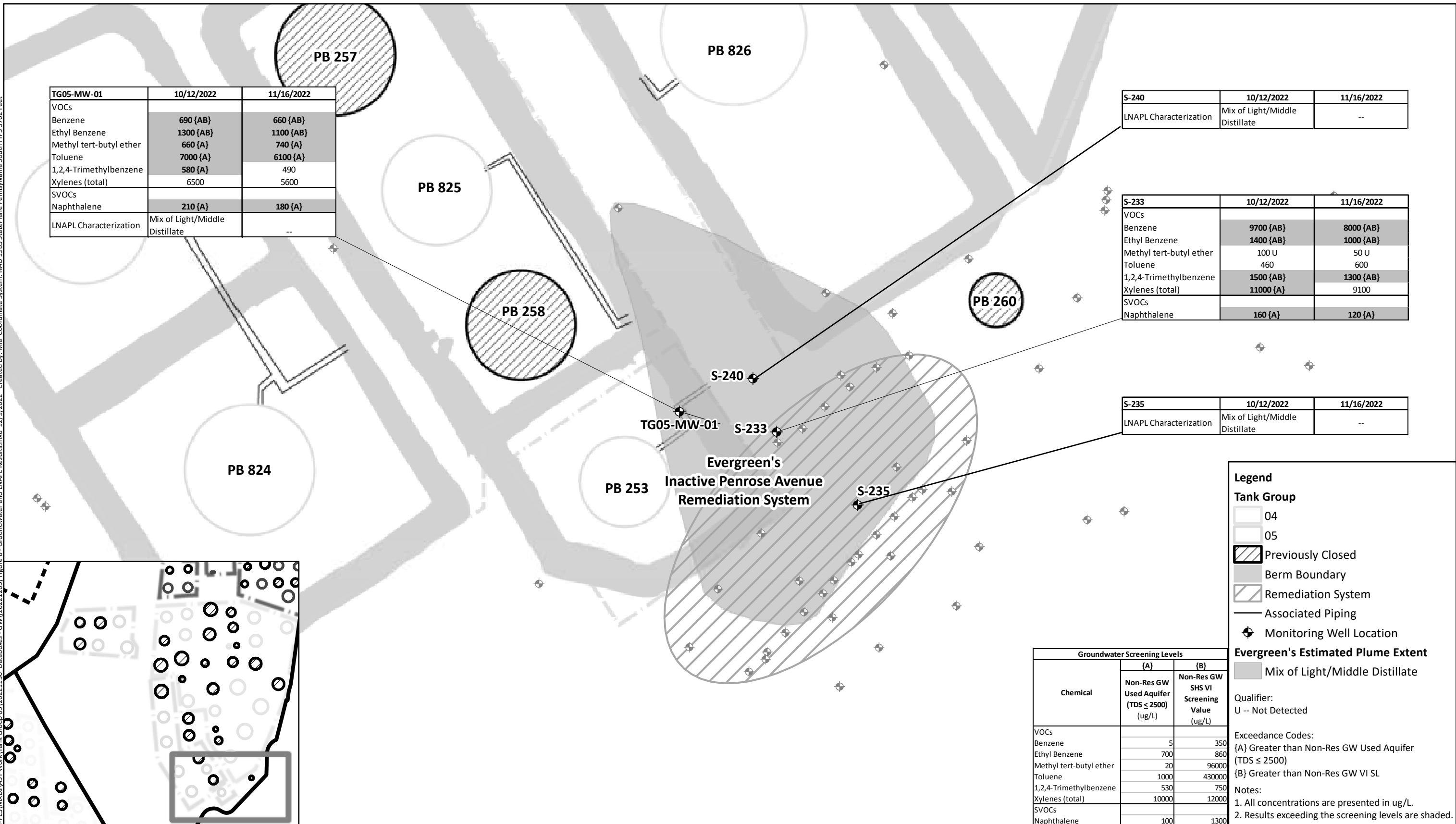
Note
 - Sample location size symbolizes relative concentration

Abbreviations
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater



	SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 05 (Naphthalene) Figure 7
		PROJECT: Aboveground Storage Tank Closure	
		PROJECT NUMBER: P044.001.002	

File: N:\GIS\PA\P044.001_PESRM-PES\MXDs\AST\Work\Tank Group 05\20221130_Databases - GW\20221205\Figure 8 - Groundwater and LNAPL Results.mxd 12/19/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



TG05-MW-01	10/12/2022	11/16/2022
VOCs		
Benzene	690 {AB}	660 {AB}
Ethyl Benzene	1300 {AB}	1100 {AB}
Methyl tert-butyl ether	660 {A}	740 {A}
Toluene	7000 {A}	6100 {A}
1,2,4-Trimethylbenzene	580 {A}	490
Xylenes (total)	6500	5600
SVOCs		
Naphthalene	210 {A}	180 {A}
LNAPL Characterization	Mix of Light/Middle Distillate	--

S-240	10/12/2022	11/16/2022
LNAPL Characterization	Mix of Light/Middle Distillate	--

S-233	10/12/2022	11/16/2022
VOCs		
Benzene	9700 {AB}	8000 {AB}
Ethyl Benzene	1400 {AB}	1000 {AB}
Methyl tert-butyl ether	100 U	50 U
Toluene	460	600
1,2,4-Trimethylbenzene	1500 {AB}	1300 {AB}
Xylenes (total)	11000 {A}	9100
SVOCs		
Naphthalene	160 {A}	120 {A}

S-235	10/12/2022	11/16/2022
LNAPL Characterization	Mix of Light/Middle Distillate	--

Legend

Tank Group

- 04
- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Associated Piping
- Monitoring Well Location

Evergreen's Estimated Plume Extent

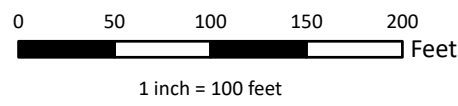
- Mix of Light/Middle Distillate

Qualifier:
U -- Not Detected

Exceedance Codes:
{A} Greater than Non-Res GW Used Aquifer (TDS ≤ 2500)
{B} Greater than Non-Res GW VI SL

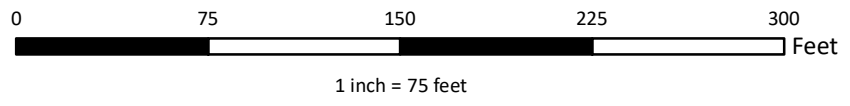
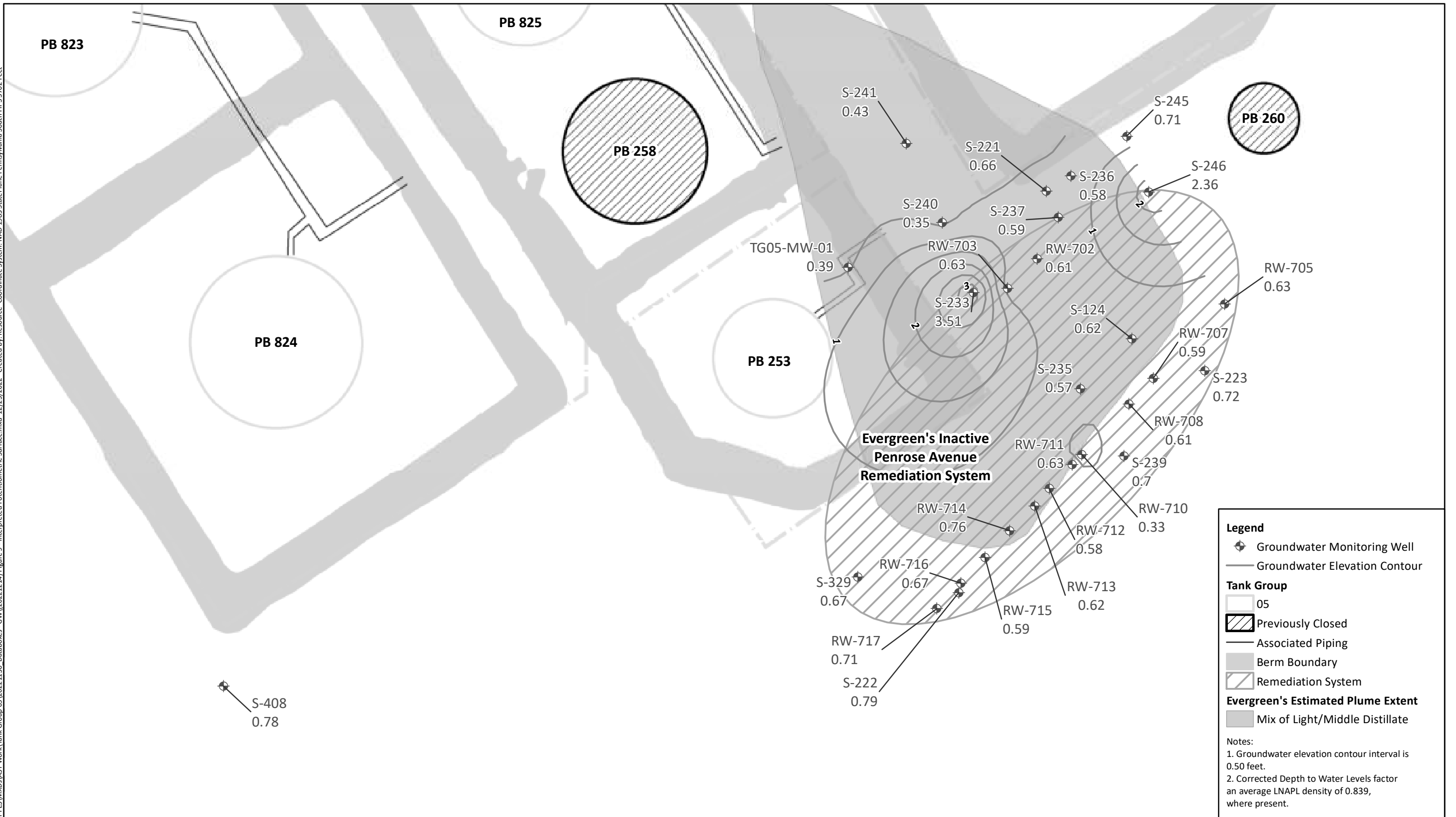
Notes:
1. All concentrations are presented in ug/L.
2. Results exceeding the screening levels are shaded.

Chemical	Groundwater Screening Levels	
	(A) Non-Res GW Used Aquifer (TDS ≤ 2500) (ug/L)	(B) Non-Res GW SHS VI Screening Value (ug/L)
VOCs		
Benzene	5	350
Ethyl Benzene	700	860
Methyl tert-butyl ether	20	96000
Toluene	1000	430000
1,2,4-Trimethylbenzene	530	750
Xylenes (total)	10000	12000
SVOCs		
Naphthalene	100	1300



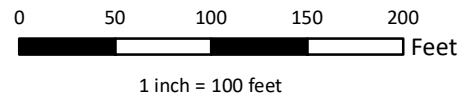
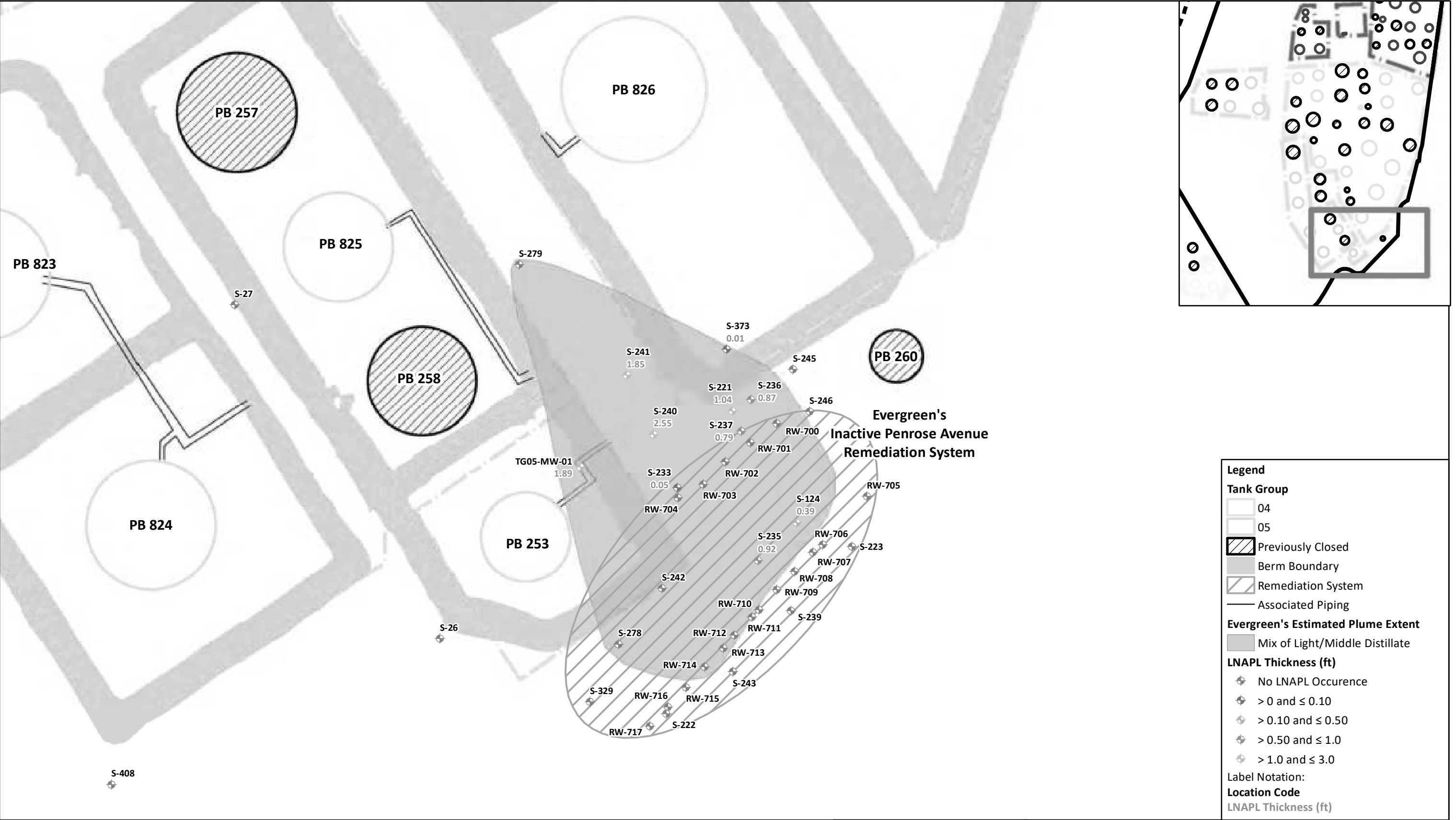
	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Characterization Groundwater and LNAPL Results Tank Group 05 Area Figure 8
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	


File: N:\GIS\Prj\PO44_001_PESRM-PES\WXDS\AST_Work\Tank_Group_05\20221130_Databoxes - GW\20221214\Figure 9 - Interpreted Potentiometric Surface.mxd 12/23/2022 Created by: Resource Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



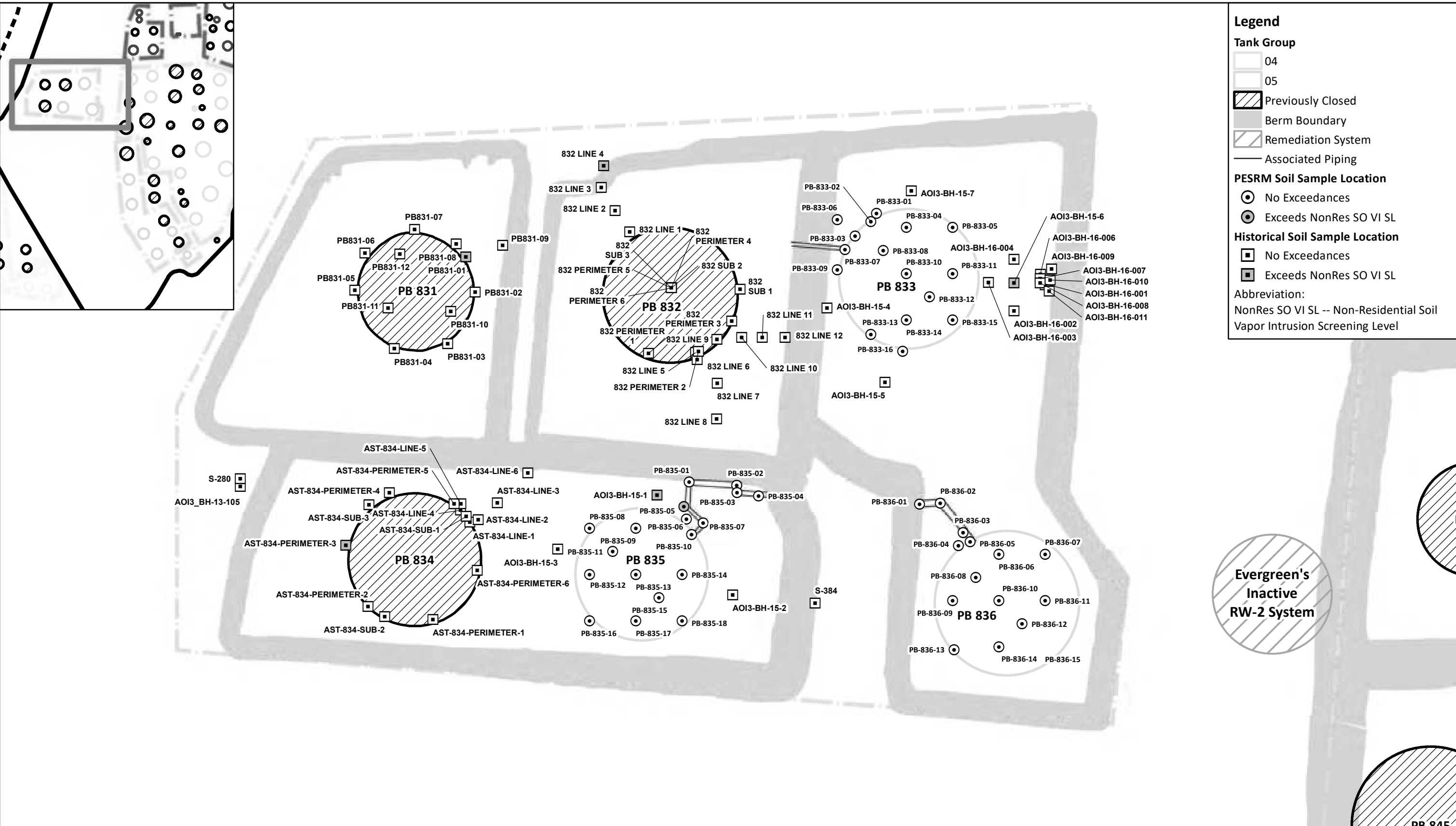
SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Interpreted Potentiometric Surface, October 13, 2022 Figure 9
	PROJECT: Tank 253 Groundwater Gauging	
	PROJECT NUMBER: P044.001.002	

File: N:\GIS\Prj\PO44_001_PESRM-PBS\WXS\AST\Work\Tank Group 05\For Site Characterization Report\Figure 10 - Most Recent LNAPL Thickness.mxd 12/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Most Recent LNAPL Thickness Tank Group 05 Area Figure 10
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXS\AST\Work\Tank Group 05\20221201_Site Characterization - MSC_D\Used with Evergreen_MaxResultsByChem\20221214\Figure 11a - TG05 - VI Soil - Northern Portion.mxd 12/15/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania



Legend

Tank Group

- 04
- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Associated Piping

PESRM Soil Sample Location

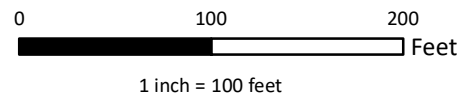
- No Exceedances
- Exceeds NonRes SO VI SL

Historical Soil Sample Location

- No Exceedances
- Exceeds NonRes SO VI SL

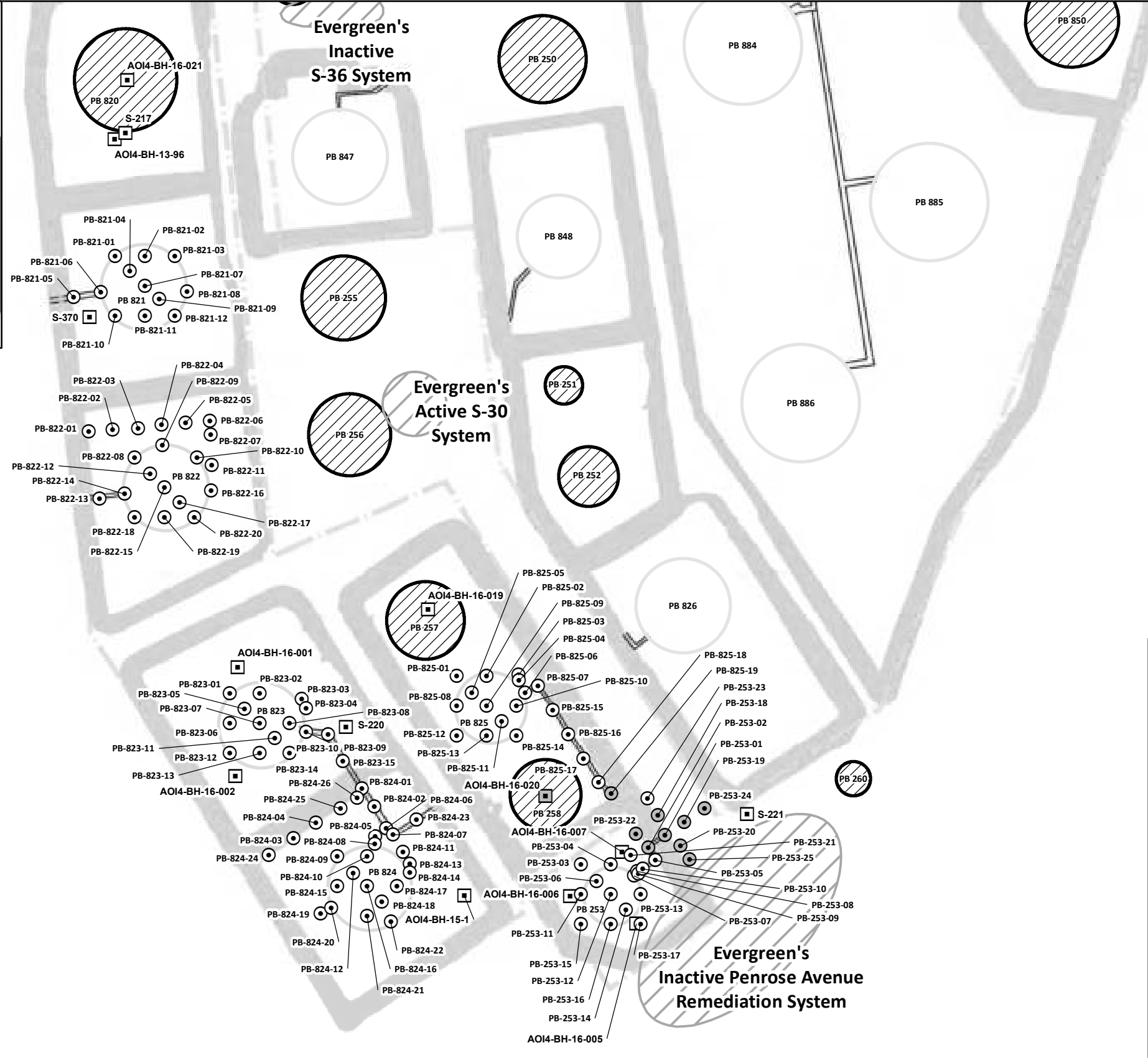
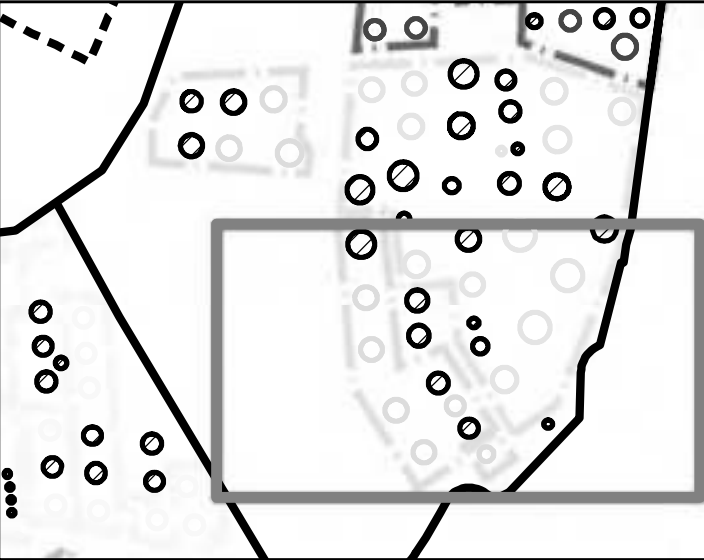
Abbreviation:
 NonRes SO VI SL -- Non-Residential Soil Vapor Intrusion Screening Level

**Evergreen's
 Inactive
 RW-2 System**



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Soil Locations with Conc > PADEP NonRes Soil VISL Tank Group 05 - Northern Portion
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 11a	

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXS\AST\Work\Tank_Group_05\20221201_Site Characterization_MSC_D\Used with Evergreen_MaxResultsByChem\20221214\Figure 11b - TG05 - VI Soil S.L. - Southern Portion.mxd 12/15/2022 Created by: Mia Coordinate System: NAD_1983_StatePlane_Pennsylvania



Legend

Tank Group

- 04
- 05
- ◻ Previously Closed
- ▬ Berm Boundary
- ▨ Remediation System
- Associated Piping

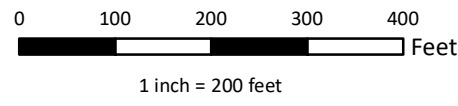
PESRM Soil Sample Location

- No Exceedances
- Exceeds NonRes SO VI SL

Historical Soil Sample Location

- No Exceedances
- Exceeds NonRes SO VI SL

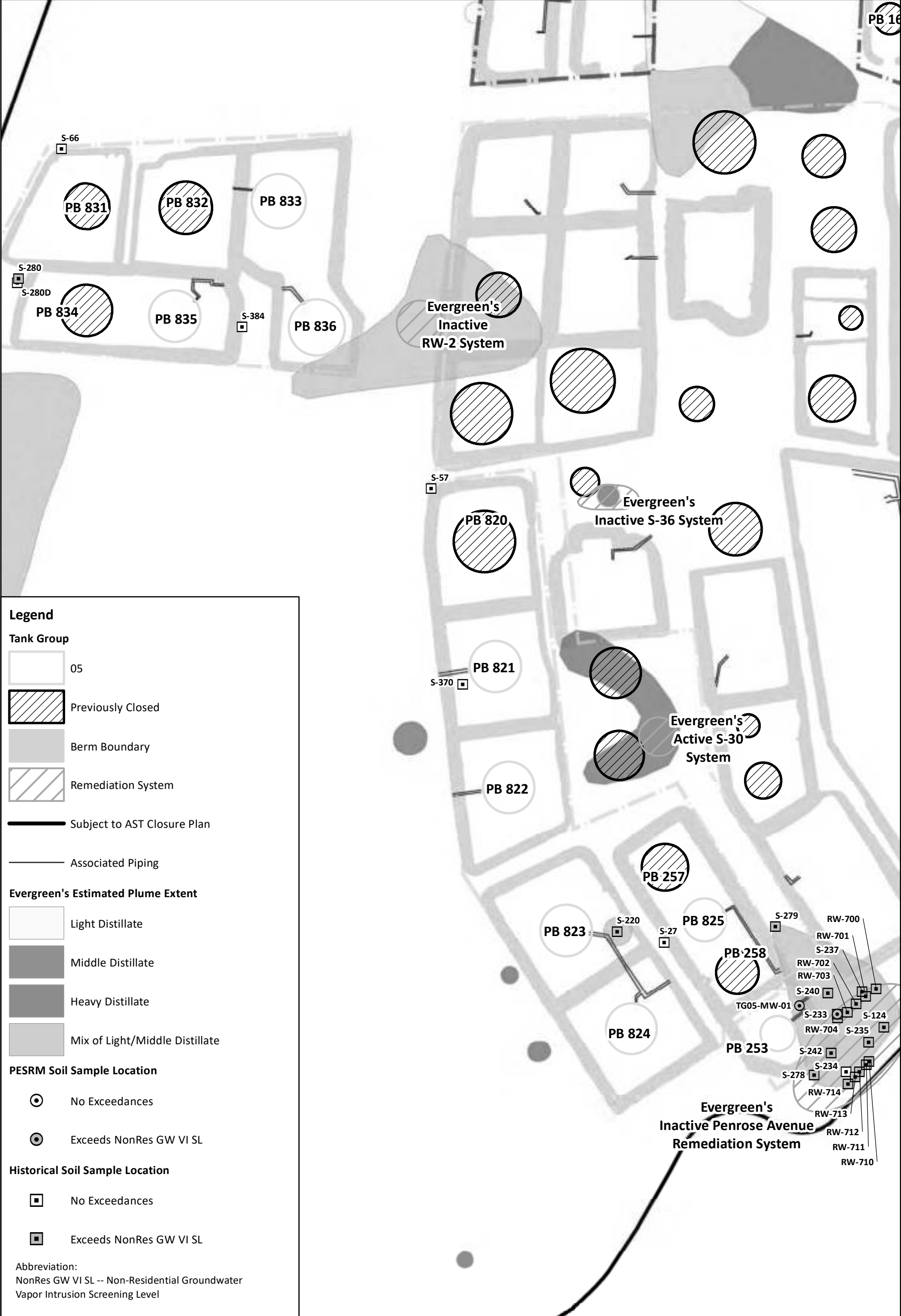
Abbreviation:
NonRes SO VI SL -- Non-Residential Soil Vapor Intrusion Screening Level



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Soil Locations with Conc > PADEP NonRes Soil VISL Tank Group 05 - Southern Portion
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

Figure 11b

File: N:\GIS\PI\P044_001_PESRM-PES\MXD\AST-Work\Tank-Group_05\20221201_Site-Characterization--MSC_D\candUsed_withEvergreen_MaxResultsByChem\20221214\Figure 11c - TG05 - VI GW SLS.mxd 12/15/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Tank Group

- 05
- Previously Closed
- Berm Boundary
- Remediation System
- Subject to AST Closure Plan
- Associated Piping

Evergreen's Estimated Plume Extent

- Light Distillate
- Middle Distillate
- Heavy Distillate
- Mix of Light/Middle Distillate

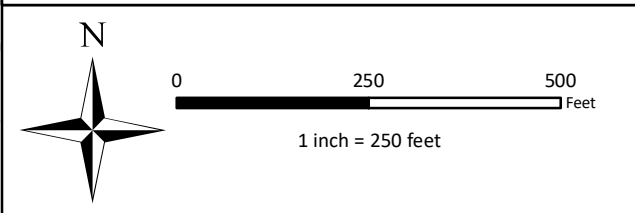
PESRM Soil Sample Location

- No Exceedances
- Exceeds NonRes GW VI SL

Historical Soil Sample Location

- No Exceedances
- Exceeds NonRes GW VI SL

Abbreviation:
 NonRes GW VI SL -- Non-Residential Groundwater Vapor Intrusion Screening Level



SAFETY FIRST

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Monitoring Well Locations with Conc > PADEP NonRes Groundwater VISL Tank Group 05

Figure 11c

Appendix A

Select Figures from the AOI 3 and AOI 4 RIRs



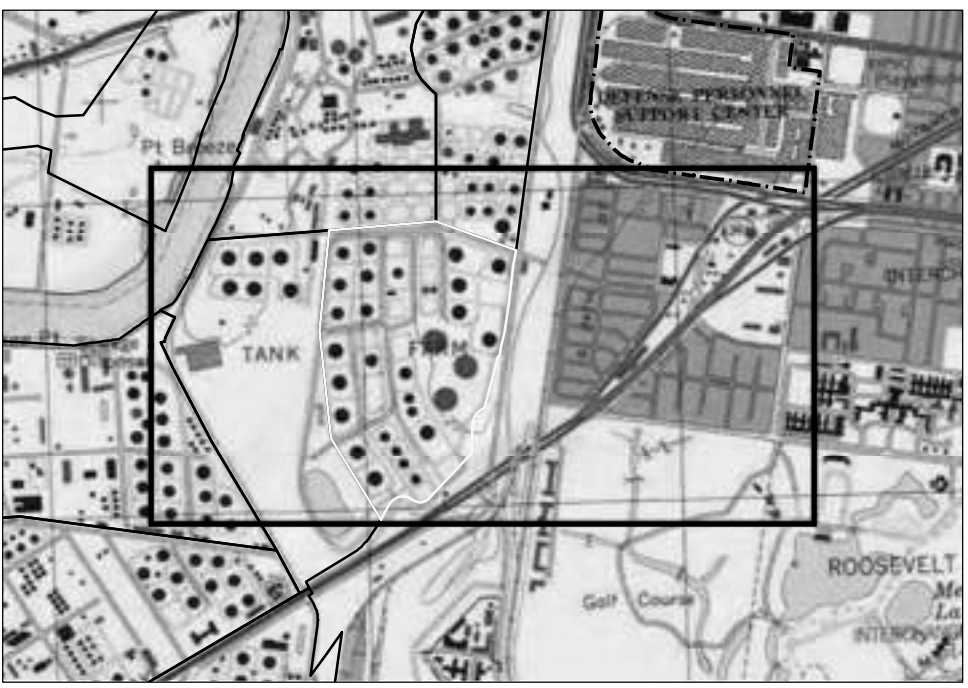
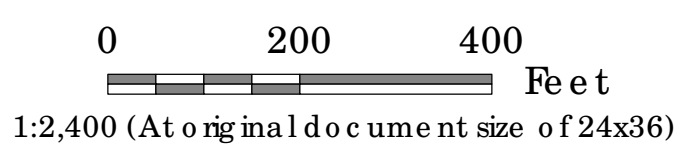


Notes:
 - Tank Group 05 boundaries/notation and cross section lines were added by Terraphase and were not on the original figures.
 - The cross section lines were approximated from Figure 4 of the Langan 2017 AOI-3 RIR and Figure 2-5 of the Stantec 2017 AOI-4 RIR.



Legend

- ◆ OFFSITE MONITORING WELL - FORMER DSCP, PASSYUNK HOMES, STEEN, AND CSX PROPERTIES
- ◆ FACILITY MONITORING WELL (AREAS OUTSIDE OF AO14)
- ◆ PROPOSED MONITORING WELL
- ◆ AO14 MONITORING WELL (INCLUDING A PORTION OF OFFSITE WELLS MONITORED BY STANTEC)
- ◆ UNCONFINED AQUIFER
- ◆ LOWER AQUIFER
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- ▨ REMEDIATION SYSTEMS DESIGNATED AS CURRENTLY ACTIVE
- ▩ REMEDIATION SYSTEMS DESIGNATED AS INACTIVE
- ▭ AREA OF INTEREST (AOI) AO14
- ▭ FORMER DEFENSE SUPPLY CENTER PHILADELPHIA (DSCP) PROPERTY



Notes
 1. Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
 2. Data Sources: Stantec and Defense Logistics Agency (DLA)
 3. Aerial Topographic Image courtesy of USGS Earthstar Geographics. SIO © 2017 Microsoft Corporation. Copyright © 2013 National Geographic Society, Inc. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

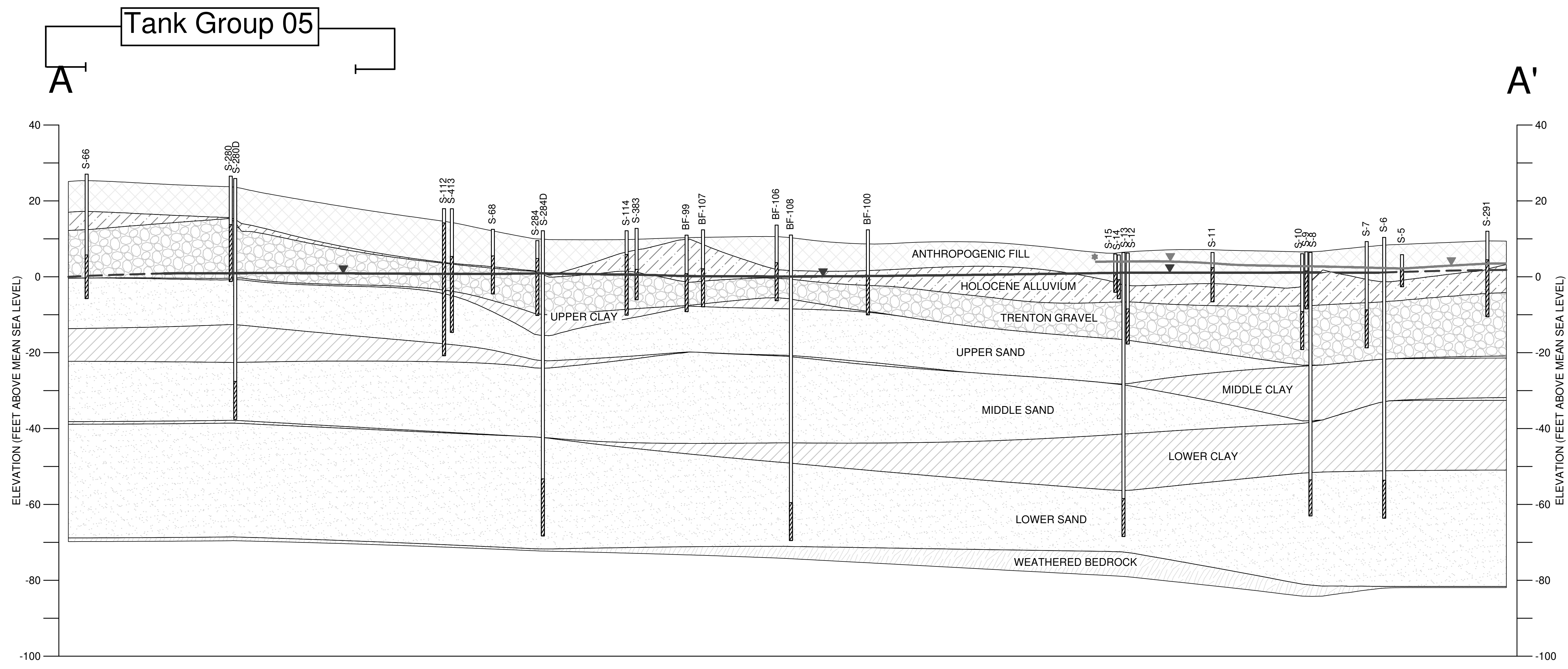
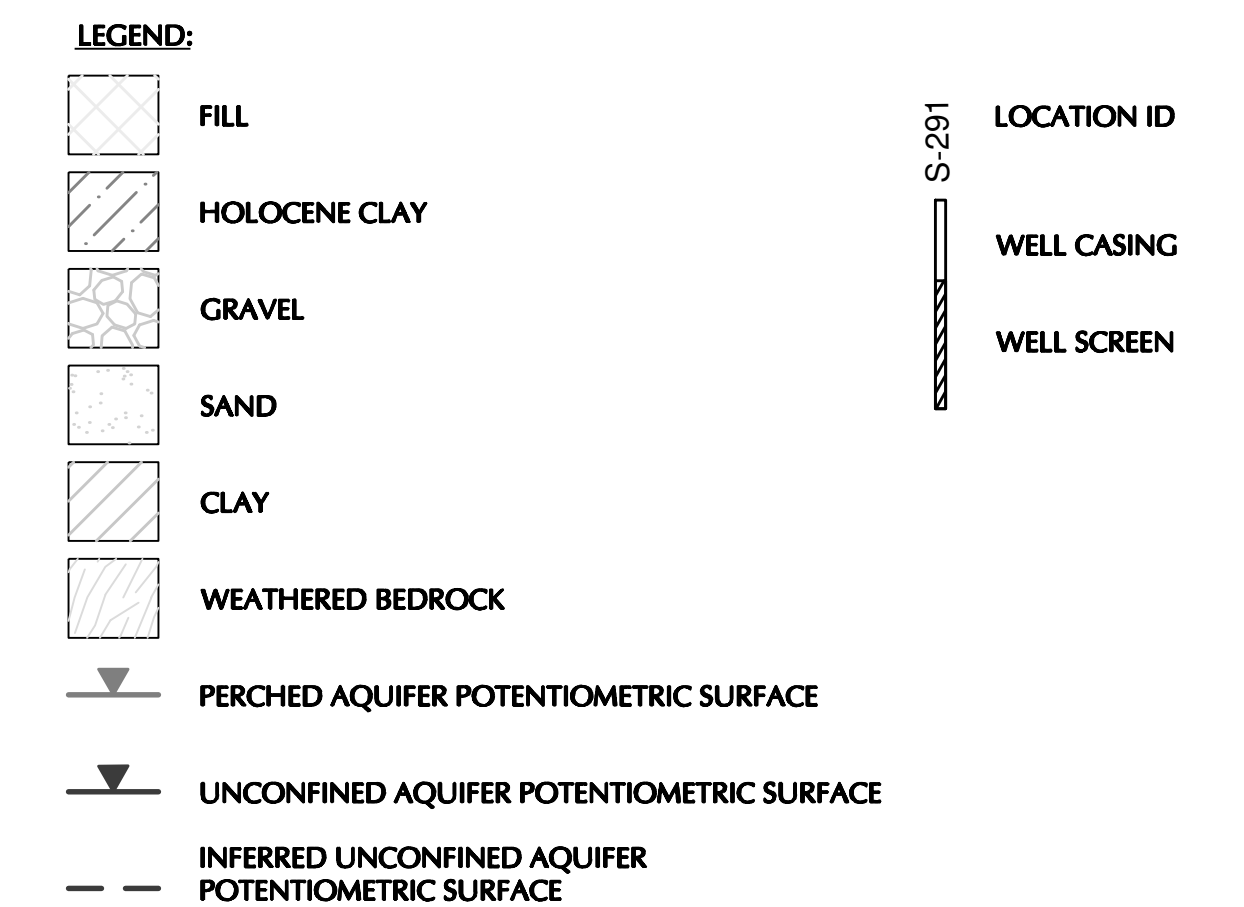
Project Location
 City of Philadelphia, Philadelphia County, Pennsylvania
 Prepared by GWC on 1/27/2017
 Technical Review by ADK on 1/31/2017
 Independent Review by JIM on 1/31/2017

Client/Project
 PHILADELPHIA REFINERY OPERATIONS, A SERIES OF EVERGREEN RESOURCES GROUP, LLC
 PHILADELPHIA REFINING COMPLEX
 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.
 1-2

Title
 AO14 SITE PLAN

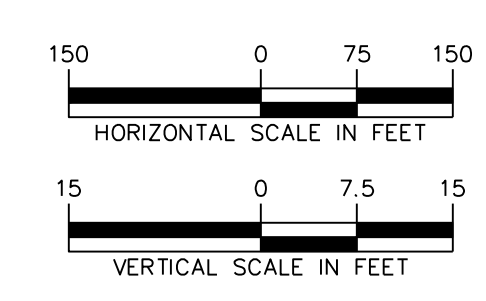
Disclose Source information as applicable to data applied to this format. The maximum accuracy will be used for the accuracy and completeness of the data. The maximum accuracy is the accuracy of the data. The maximum accuracy is the accuracy of the data. The maximum accuracy is the accuracy of the data.



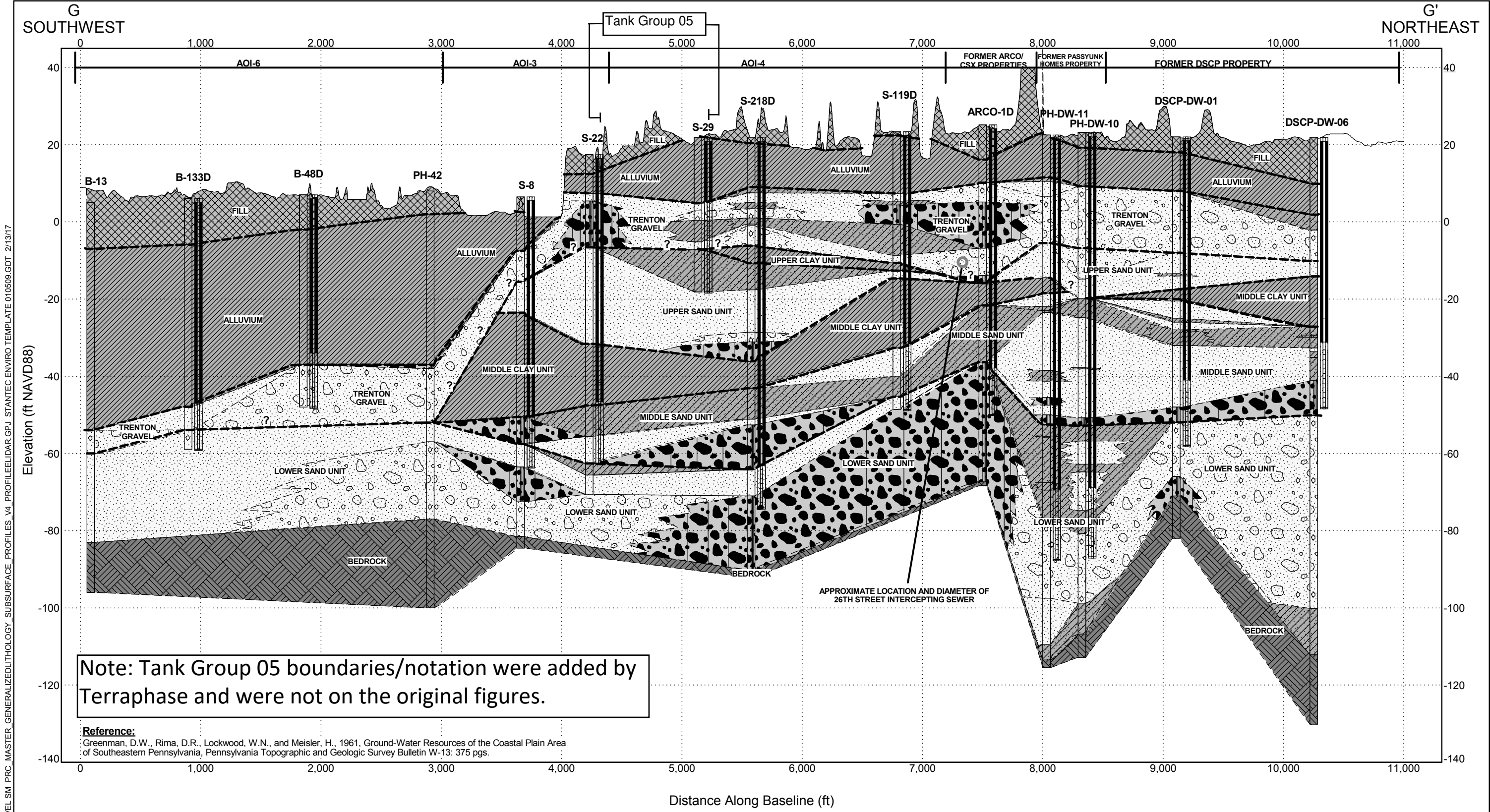
Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

- NOTES:**
1. GEOLOGIC CROSS-SECTION WAS CREATED FROM THE 3D GEOLOGIC MODEL OF AOI 3, WHICH WAS GENERATED IN EARTH VOLUMETRIC STUDIO (EVS) SOFTWARE.
 2. THE PERCHED AQUIFER AND UNCONFINED AQUIFER POTENTIOMETRIC SURFACES WERE INTERPOLATED IN EVS USING THE GROUNDWATER ELEVATION DATA COLLECTED DURING THE DECEMBER 2015 GAUGING EVENT BY AQUATERRA TECHNOLOGIES, INCORPORATED.

* THE PERCHED AQUIFER POTENTIOMETRIC SURFACE IS ONLY SHOWN TO THE INTERPRETED EXTENT OF THE PERCHED AQUIFER.



 Evergreen Resources Management Operations 2 Righter Parkway, Suite 200 Wilmington, DE 19803	Project	Drawing Title	Project No.	Drawing No.
	AOI-3 REMEDIAL INVESTIGATION REPORT PES PHILADELPHIA REFINING COMPLEX <small>PHILADELPHIA COUNTY PENNSYLVANIA</small>	GEOLOGIC CROSS SECTION A-A'	2574601 Date: 2/7/2017 Scale: 1"=150' HOR. 1"=15' VER. Drawn By: MMK Checked By: ED Submission Date: 2/7/2017	5



Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

Reference:
Greenman, D.W., Rima, D.R., Lockwood, W.N., and Meisler, H., 1961, Ground-Water Resources of the Coastal Plain Area of Southeastern Pennsylvania, Pennsylvania Topographic and Geologic Survey Bulletin W-13: 375 pgs.

STRAT COLUMN WELL AND WAT LEVEL SM_PRC_MASTER_GENERALIZEDLITHOLOGY_SUBSURFACE_PROFILES_V4_PROFILELIDAR.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 2/13/17



GENERALIZED LITHOLOGY GRAPHICS					
	Apparent Fill		Sand (incl. trace to little silt/clay/gravel)		"Mud" (silt/clay, incl. trace to little sand/gravel)
	Sandy Gravel		"Muddy" Sand		Bedrock (incl. saprolite where indicated)
	Gravelly Sand				

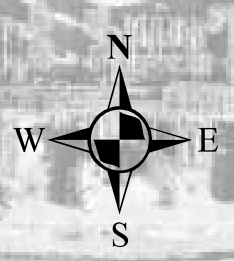
Notes:

1. Land surface profile obtained from a 2010 light detection and ranging (LIDAR) elevation model available from the United States Geological Survey (USGS).
2. Lithologic logs for borings B-13 and PH-42 were obtained from Tables 13 and 14 of Greenman et al., 1961. Geographic locations for those borings were digitized on-screen by Stantec using a georeferenced image of Greenman et al., 1961, Plate 1.
3. Stantec generalized lithologic data from available borehole logs into 8 categories as indicated for interpretive purposes. "Mud" is utilized in these profiles to generally represent clay/silt mixtures, or clay and silt-rich sandy sediments.
4. Correlation between lithologies and, where applicable, geologic units is based on the straight-line method. Actual conditions between boreholes may vary from what is shown on this profile. Contacts are dashed (inferred).
5. Vertical Exaggeration ~ 32 X

Figure 2-8. Stratigraphic Profile G - G'

Philadelphia Refinery Operations
a series of Evergreen Resources Group, LLC
3144 Passyunk Avenue
Philadelphia, PA 19145

Project Number: 213402602



Schuylkill River

Tank Group 05

AOI-3

Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

Legend

- S-23
0.64 Unconfined Aquifer Monitoring Well and Groundwater Elevation (ft. amsl)
- Well Abandoned/Destroyed/Unable to Locate
- Perched Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well
- Lower Aquifer Monitoring Well
- Unconfined Aquifer Recovery Well

- Unconfined Aquifer Groundwater Contours (ft amsl)
- Inferred Unconfined Aquifer Groundwater Contours (ft amsl)
- AOI Boundary
- Well Not Used in Contouring

- Notes:
1. Aerial imagery provided by Nearmap.com, dated 7/29/2015.
 2. Area of Interest boundaries referenced from 2011 ALTA/ACSM Land Title Survey, prepared for Sunoco Inc. (R&S).
 3. Groundwater elevations were obtained from the December 2015 gauging event performed by Aquaterra Technologies, Incorporated.
 4. ft. amsl = feet above mean sea level
 5. Monitoring well S-285 and S-290 was not used in contouring because they appear to be screened across both the perched and unconfined aquifers.
 6. Groundwater elevation from S-59 was omitted when generating the groundwater contours.
 7. NM = not measured

Figure 10: Groundwater Elevations (December 2015) – Unconfined Aquifer Wells AOI-3 Remedial Investigation Report PES Philadelphia Refining Complex Philadelphia, Pennsylvania



Philadelphia Refinery Operations
A Series of Evergreen Resources Group, LLC.
2 Righter Parkway, Suite 200
Wilmington, DE 19803

0 75 150 300 Feet
SCALE: 1" = 100'
DATE: June 23, 2016
DRAWN BY: AAC
CDD BY: RM
JOB#: 2574801



Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

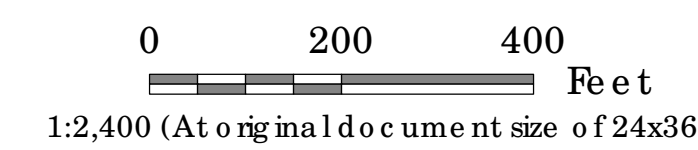


Legend

- ◆ 2016 Well Gauging Data - Unconfined Aquifer
- 2016 WATER TABLE ELEVATION (ft NAVD 88)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- LIMITS OF UNCONFINED AQUIFER WELL CONTROL
- AREA OF INTEREST (AOI)
- AOI 4
- FORMER DSCP PROPERTY
- NM NOT MEASURED
- 5-11 WELLS NOT USED FOR GROUNDWATER MONITORING
- 1.46' GROUNDWATER ELEVATION (FEET NAVD 88)

Notes

1. Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Sources: Stantec and Defense Logistics Agency (DLA)
3. Labels denote groundwater elevation in feet. Depth to groundwater was measured in each well to the nearest one-hundredth of a foot using an interface probe.
4. Contour Interval = 0.5 feet
5. Gauging data for DSCP property wells obtained from the DIA. Rigorous evaluation of that data not performed by Stantec.
6. Groundwater elevation data was interpolated using block kriging with a linear variogram model in Surfer.
7. Aerial & Topo: Service Layer Credits: Image courtesy of USGS Earthstar Geographics. SID © 2017 Microsoft Corporation. Copyright © 2013 National Geographic Society, Inc. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.



Project Location: City of Philadelphia, Philadelphia County, Pennsylvania
 Prepared by GWC on 1/12/2017
 Technical Review by ADK on 2/23/2017
 Independent Review by JRD on 3/6/2017

Client/Project: PHILADELPHIA REFINERY OPERATIONS, A SERIES OF EVERGREEN RESOURCES GROUP, LLC PHILADELPHIA REFINING COMPLEX 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.: 5-4
 Title: MAY 2016 WATER TABLE ELEVATION - INCLUDING SYNOPSIS DSCP GAUGING DATA

Disclaimer: Stantec assumes no responsibility for data applied to software format. The accuracy and completeness of the data, the work performed by Stantec, the files, employees, contractors and agents, from any and all businesses using any form of the content or products of the data.



Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

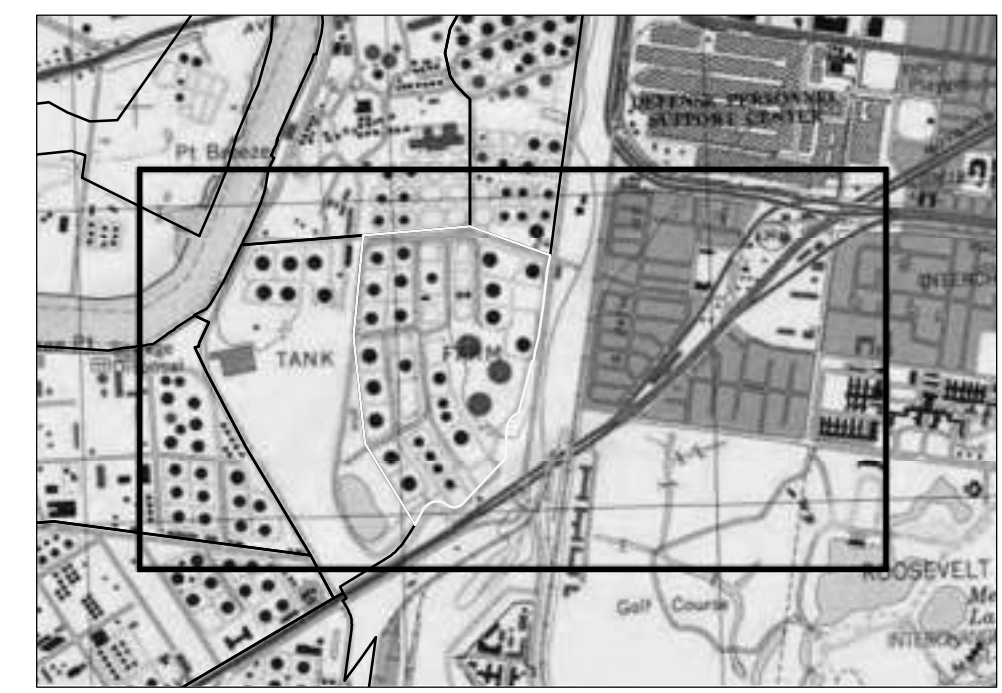
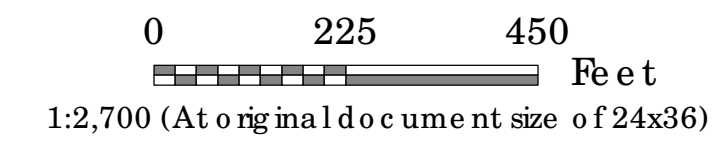


Legend

- MONITORING/RECOVERY WELL
- 2012/2013 BENZENE MAXIMUM CONCENTRATION (ug/L)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- AREA OF INTEREST (AOI)
- AOI 14
- CROPPED GRID EXTENT
- 0.48 MAXIMUM CONCENTRATION OF BENZENE (ug/L)
- NOT DETECTED
- STEEN-MW-09 (710) WELLS NOT USED FOR MONITORING

BENZENE (MICROGRAMS PER LITER (ug/L))

5 (STANDARD HEALTH STANDARD) - 100
100 - 500
500 - 1,000
1,000 - 5,000
5,000 - 10,000
10,000 - 15,000
> 15,000



Notes

- Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
- Source: Stantec
- Labels denote well identifier and benzene concentration in micrograms per liter (ug/L).
- COC analytic data was interpolated using the Natural Neighbors method in Surfer.
- Aerial & Topo Image courtesy of USGS Earthstar Geographics. SD © 2017 Microsoft Corporation. Copyright © 2013 National Geographic Society, Inc. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

Project Location 213402602
 City of Philadelphia, Philadelphia County, Pennsylvania
 Prepared by GWC on 1/7/2017
 Technical Review by ADK on 3/9/2017
 Independent Review by JRD on 3/9/2017

Client/Project
 PHILADELPHIA REFINERY OPERATIONS, A SERIES OF EVERGREEN RESOURCES GROUP, LLC PHILADELPHIA REFINING COMPLEX 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.
10-2
Title
UNCONFINED AQUIFER BENZENE MAXIMUM CONCENTRATION - 2012 TO 2013 DATA

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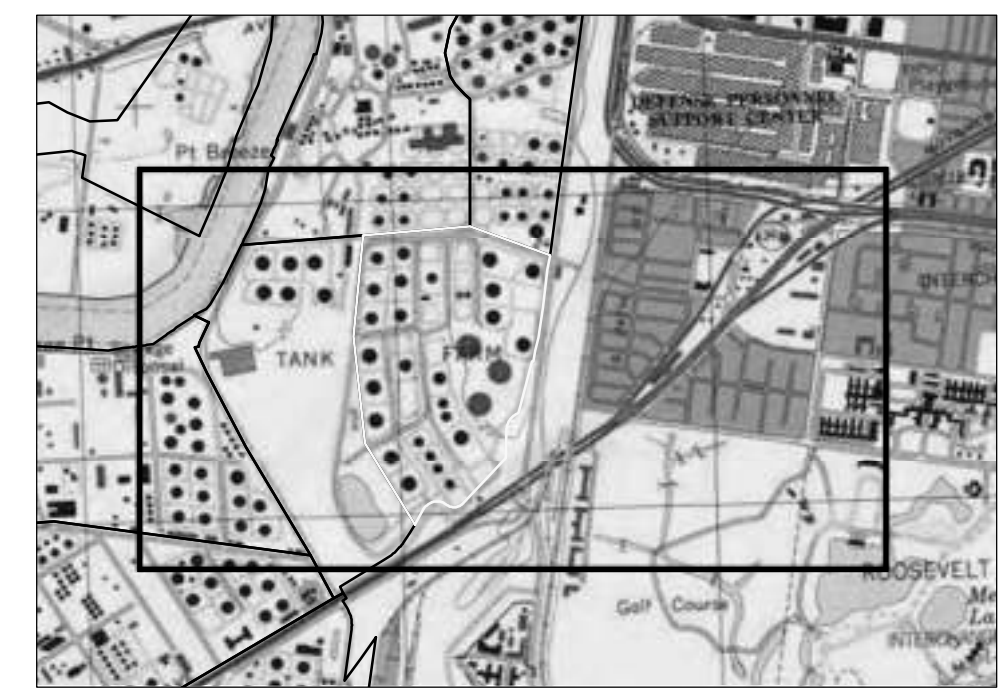
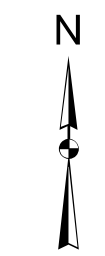
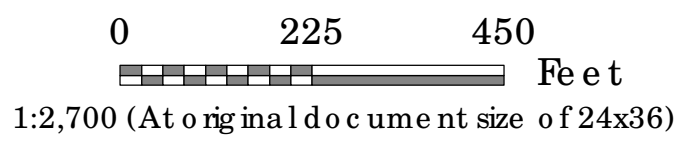
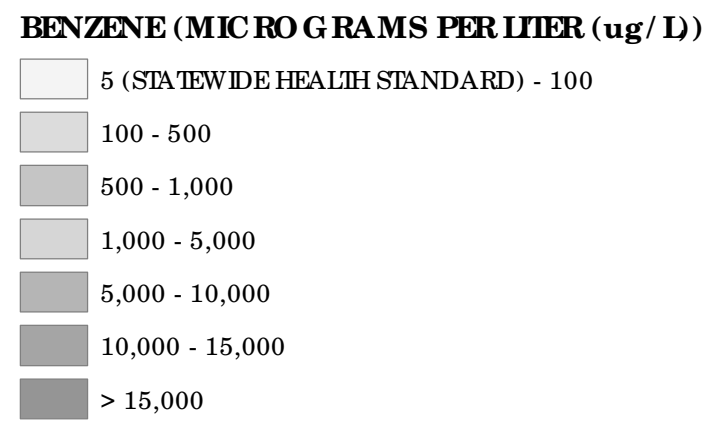


Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.



Legend

- MONITORING/RECOVERY WELL
- 2014/2016 BENZENE MAXIMUM CONCENTRATION (ug/L)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- CROPPED GRID EXTENT
- AREA OF INTEREST (AOI)
- AO14
- 0.42 MAXIMUM CONCENTRATION OF BENZENE (ug/L)
- ND NOT DETECTED
- WELLS NOT USED FOR MONITORING



Project Location
City of Philadelphia,
Philadelphia County,
Pennsylvania

213402602
Prepared by GWC on 1/7/2017
Technical Review by ADK on 3/9/2017
Independent Review by JKD on 3/9/2017

Client/Project
PHILADELPHIA REFINERY OPERATIONS, A SERIES OF
EVERGREEN RESOURCES GROUP, LLC
PHILADELPHIA REFINING COMPLEX
3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.
10-3

Title
**UNCONFINED AQUIFER BENZENE MAXIMUM
CONCENTRATION - 2014 TO 2016 DATA**

Notes

- Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
- Source: Stantec
- Labels denote well identifier and benzene concentration in micrograms per liter (ug/L).
- COC analytical data was interpolated using the Natural Neighbouring method in Surfer.
- Aerial & Topo Image courtesy of USGS Earthstar Geographics. SD © 2017 Microsoft Corporation. Copyright © 2013 National Geographic Society, Inc. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

Disclose Source information as applicable to the data used in this report. The maximum accuracy of the data is the accuracy of the source data. The accuracy of the data is the accuracy of the source data. The accuracy of the data is the accuracy of the source data.



Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.

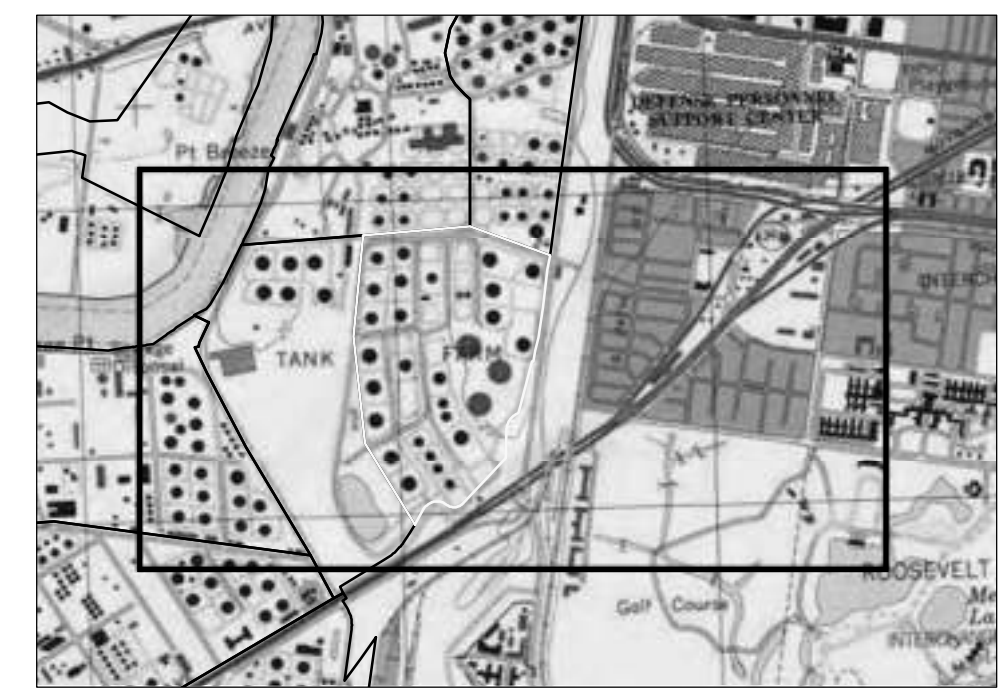
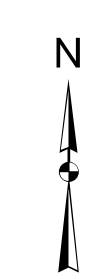
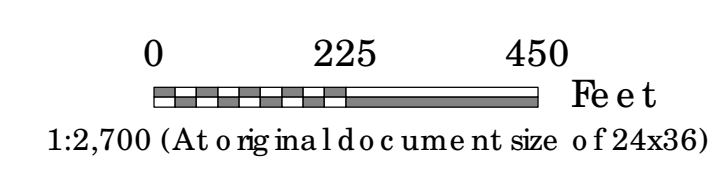


Legend

- MONITORING/RECOVERY WELL
- 2004/2005 MTEB MAXIMUM CONCENTRATION (ug/L)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- AREA OF INTEREST (AOI)
- CROPPED GRID EXTENT
- 270 MAXIMUM CONCENTRATION OF MTEB (ug/L)
- ND NOT DETECTED
- WELLS NOT USED FOR MONITORING

METHYL TERTIARY BUTYLETHER (MICROGRAMS PER LITER (ug/L))

- 20 (STATEWIDE HEALTH STANDARD) - 200
- 200 - 2,000



- Notes**
1. Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
 2. Source: Stantec
 3. Labels denote well identifier and MTEB concentration in micrograms per liter (ug/L).
 4. COC analytical data was interpolated using the Natural Neighboring method in Surfer.
 5. MTEB = methyl tertiary butylether
 6. Aerial & Topo Image courtesy of USGS Earthstar Geographic Services. © 2017 Microsoft Corporation. Copyright © 2013 National Geographic Society, Inc. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

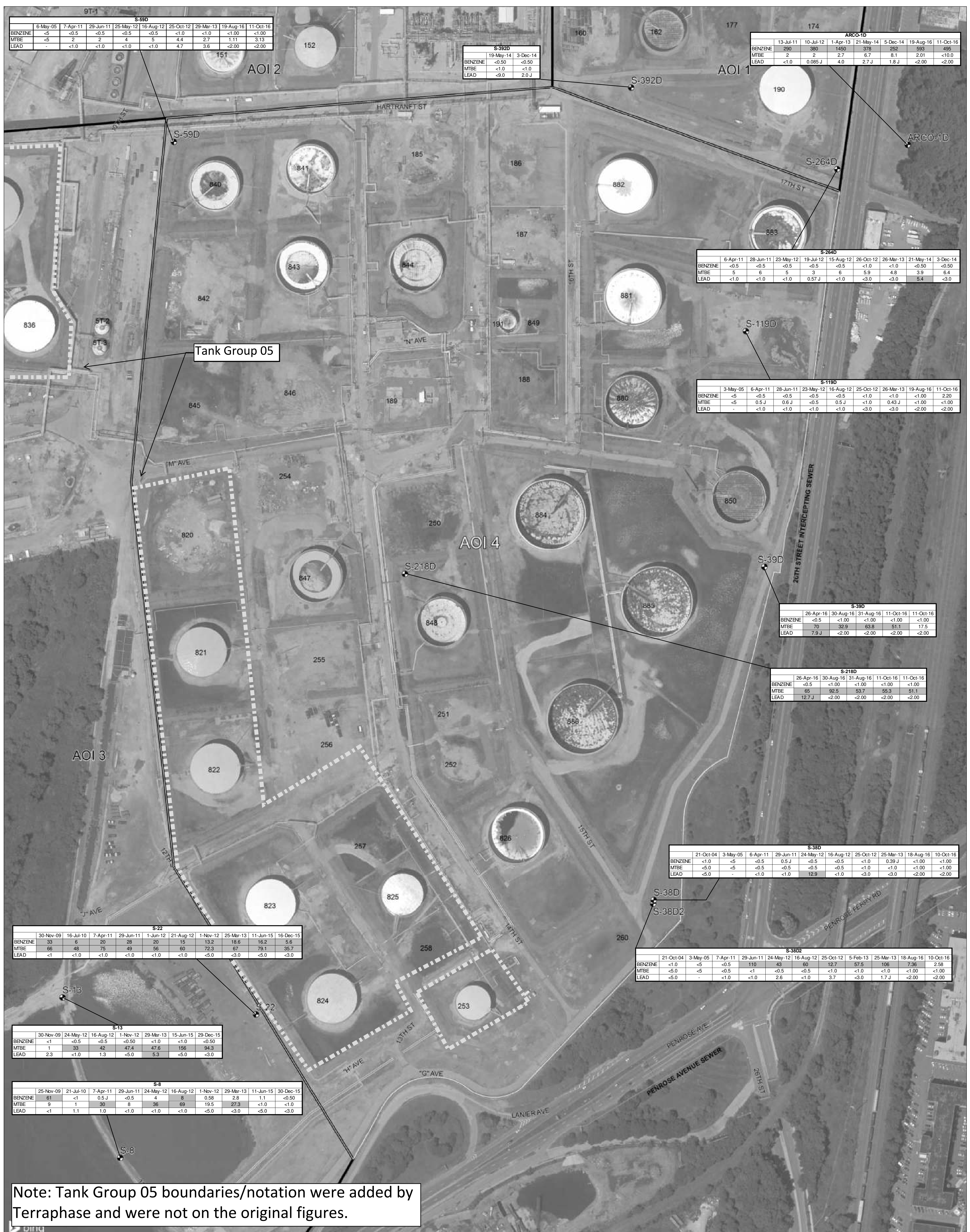
Project Location
 City of Philadelphia,
 Philadelphia County,
 Pennsylvania

213402602
 Prepared by GWC on 1/7/2017
 Technical Review by ADK on 3/9/2017
 Independent Review by JKD on 3/9/2017

Client/Project
 PHILADELPHIA REFINERY OPERATIONS, A SERIES OF
 EVERGREEN RESOURCES GROUP, LLC
 PHILADELPHIA REFINING COMPLEX
 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.
10-4

Title
UNCONFINED AQUIFER MTEB MAXIMUM CONCENTRATION - 2004 TO 2005 DATA



Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.



- Legend**
- LOWER AQUIFER MONITORING RING WELL
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - AREA OF INTEREST (AOI)
 - AOI 4
 - 65 CONCENTRATION DETECTED IN GROUNDWATER SAMPLE EXCEEDS THE SHS (ug/L)
 - <1.0 COMPOUND NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT (ug/L)

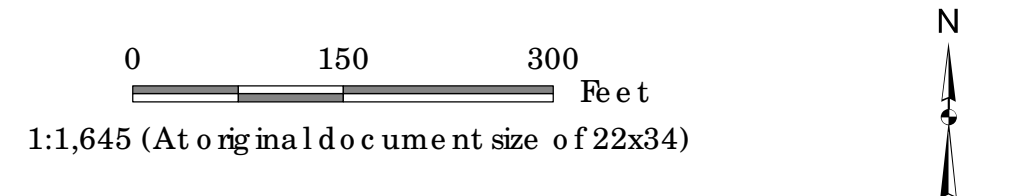


Figure No. **10-7**
Title **LOWER AQUIFER GROUNDWATER EXCEEDANCES – BENZENE, MTBE, LEAD**

Client/Project
PHILADELPHIA REFINERY OPERATIONS, A SERIES OF EVERGREEN RESOURCES GROUP, LLC
PHILADELPHIA REFINING COMPLEX
3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

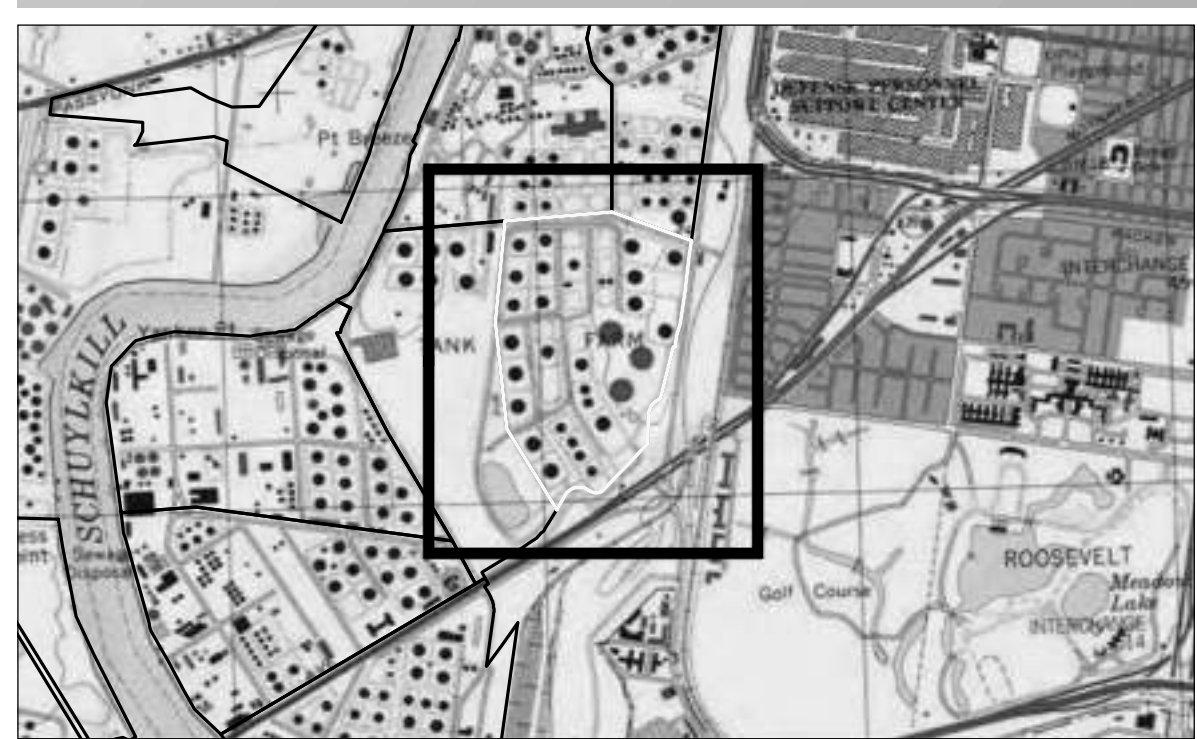
Project Location 213402602
City of Philadelphia, Pennsylvania Prepared by GWC on 2/14/2017
Technical Review by ADK on 3/10/2017
Independent Review by JKD on 3/10/2017



- Notes**
1. Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 3702 Feet
 2. Sources: Statec
 3. All concentrations shown in ug/L
 4. Dissolved concentrations of metals shown
 5. MTBE = methyl tertiary butyl ether
 6. J - indicates an estimated value
 7. Aerial & Topo © 2017 Microsoft Corporation
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Note: Tank Group 05 boundaries/notation were added by Terraphase and were not on the original figures.



Notes:
 1. Coordinate System: NAD 1983 State Plane Pennsylvania South FIPS 5102 Feet
 2. Source: Satellite
 3. Data: The information on this map is derived from satellite imagery and is subject to change pending additional investigations of those areas.
 4. Generalized LNAPL types established by State using laboratory provided information to use of products only.
 5. Aerial & Topo © 2017 Microsoft Corporation
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Legend
 AOI 4 MONITORING WELL (INCLUDING SELECTED PERIMETER WELLS)
 HYDROSTRATIGRAPHIC UNIT
 UNCONFINED AQUIFER
 LOWER AQUIFER
 OTHER FACILITY MONITORING WELLS (OUTSIDE SCOPE OF THIS AOI 4 RIR)
 OFFSITE MONITORING WELL - FORMER DSCP, PASSYUNK HOMES, STEEN, AND CSX PROPERTIES
 APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT'S SEWER
 AREA OF INTEREST (AOI)
 AOI 4

MAXIMUM OBSERVED LNAPL THICKNESS (2013-PRESENT) (FEET OF LNAPL)
 ● 0.01 - 0.10
 ○ 0.11 - 0.50
 ○ 0.51 - 1.00
 ○ 1.01 - 1.50
 ○ 1.51 +
ESTIMATED LNAPL PLUME EXTENT
 GENERALIZED LNAPL TYPE
 LIGHT DISTILLATE
 MIDDLE DISTILLATE
 MIXES OF LIGHT/MIDDLE DISTILLATE
 HEAVY DISTILLATE

**NOTE: IN THE PENROSE REMEDIATION SYSTEM AREA, THE INSET MAP INDICATES THE OBSERVED LNAPL THICKNESS AND ESTIMATED PLUME EXTENT IN MAY 2015 (SECOND QUARTER GAUGING).

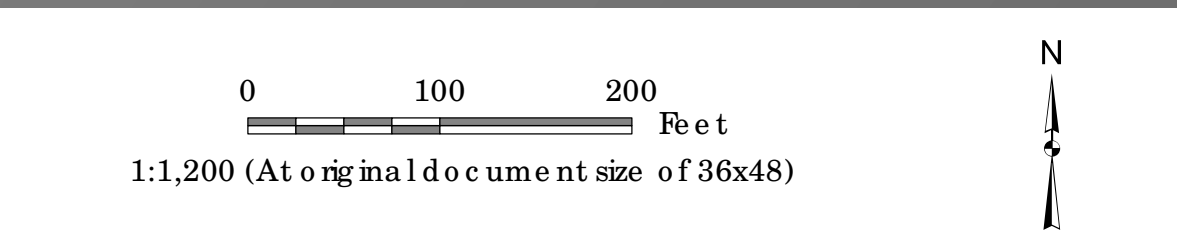


Figure No. **6-1**
ESTIMATED LNAPL PLUME EXTENT IN AOI 4 AND VICINITY

Client/Project: PHILADELPHIA REFINERY OPERATIONS
 A SERIES OF ENVIRONMENTAL RESOURCES GROUP, LLC
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Project Location: Philadelphia Refining Complex
 No. 4 Tank Farm
 Philadelphia, Pennsylvania

Prepared by: ADKON 2/3/2017
 Technical Review by: AMF on 2/28/2017
 Independent Review by: JLM on 3/1/2017



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Appendix B

Historical Soil Sampling Results



Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	832 LINE 1	832 LINE 2	832 LINE 3	832 LINE 4	832 LINE 5	832 LINE 6	832 LINE 7	832 LINE 8	832 LINE 9	832 LINE 10	832 LINE 11		
Matrix	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil		
Collection Depth (ft bgs)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5		
Sample Date	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006		
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	ND (0.025)	0.036 J (0.025)	ND (0.026)	0.15 J (0.026)	ND (0.027)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.031)	ND (0.029)	ND (0.03)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	0.24 J (0.051)	0.066 J (0.05)	ND (0.053)	0.61 (0.053)	ND (0.054)	ND (0.057)	0.11 J (0.057)	0.44 (0.058)	ND (0.062)	ND (0.058)	ND (0.059)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	0.47 (0.051)	0.22 J (0.05)	ND (0.053)	1.3 (0.053)	ND (0.054)	ND (0.057)	ND (0.057)	0.49 (0.058)	ND (0.062)	ND (0.058)	ND (0.059)
Methyl tert-butyl ether	8500	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	ND (0.051)	0.29 (0.05)	ND (0.053)	0.56 (0.053)	ND (0.054)	ND (0.057)	ND (0.057)	ND (0.058)	ND (0.062)	ND (0.058)	ND (0.059)
1,2,4-Trimethylbenzene	4700	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	0.073 J (0.035)	0.3 (0.035)	ND (0.035)	3.3 (0.18)	ND (0.039)	ND (0.04)	1.4 (0.04)	0.75 (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Benzo(a)anthracene	130	340	ND (0.035)	0.039 J (0.035)	ND (0.035)	0.57 J (0.18)	ND (0.039)	ND (0.04)	ND (0.04)	ND (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Benzo(a)pyrene	91	46	ND (0.035)	ND (0.035)	ND (0.035)	ND (0.18)	ND (0.039)	ND (0.04)	ND (0.04)	ND (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Benzo(b)fluoranthene	76	170	ND (0.035)	0.036 J (0.035)	ND (0.035)	ND (0.18)	ND (0.039)	ND (0.04)	ND (0.04)	ND (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Benzo(g,h,i)perylene	190000	180	ND (0.035)	ND (0.035)	ND (0.035)	0.19 J (0.18)	ND (0.039)	ND (0.04)	ND (0.04)	ND (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Chrysene	760	230	ND (0.035)	0.12 J (0.035)	ND (0.035)	2.3 (0.18)	ND (0.039)	ND (0.04)	0.044 J (0.04)	ND (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	0.06 J (0.035)	0.43 (0.035)	0.035 J (0.035)	7.7 (0.18)	ND (0.039)	ND (0.04)	2.7 (0.04)	1.8 (0.041)	ND (0.039)	0.46 (0.04)	ND (0.04)
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	ND (0.051)	1.2 (0.05)	2.9 (0.053)	4.6 (0.053)	0.99 (0.054)	ND (0.057)	ND (0.057)	1.5 (0.058)	ND (0.062)	ND (0.058)	ND (0.059)
Phenanthrene	190000	10000	ND (0.035)	0.97 (0.035)	0.048 J (0.035)	20 (0.18)	ND (0.039)	ND (0.04)	7 (0.2)	3.5 (0.041)	ND (0.039)	0.66 (0.04)	ND (0.04)
Pyrene	96000	2200	0.043 J (0.035)	0.26 (0.035)	ND (0.035)	3 (0.18)	ND (0.039)	ND (0.04)	0.34 (0.04)	0.18 J (0.041)	ND (0.039)	ND (0.04)	ND (0.04)
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	832 LINE 12	832 PERIMETER 1	832 PERIMETER 2	832 PERIMETER 3	832 PERIMETER 4	832 PERIMETER 5	832 PERIMETER 6	832 SUB 1	832 SUB 2	832 SUB 3	AOI3_BH-13-105		
Matrix	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil		
Collection Depth (ft bgs)	0 - 0.5	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	4.5 - 5	4.5 - 5	4.5 - 5	8 - 9		
Sample Date	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	8/25/2006	7/30/2013		
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	ND (0.028)	ND (0.027)	ND (0.027)	ND (0.029)	ND (0.026)	0.081 J (0.027)	0.059 J (0.027)	ND (0.028)	ND (0.027)	ND (0.029)	ND (0.00097)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	ND (0.056)	ND (0.055)	0.11 J (0.055)	ND (0.058)	ND (0.053)	0.81 (0.054)	0.13 J (0.054)	ND (0.056)	0.078 J (0.054)	ND (0.059)	ND (0.0048)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	ND (0.056)	ND (0.055)	ND (0.055)	ND (0.058)	ND (0.053)	1.9 (0.054)	0.063 J (0.054)	ND (0.056)	0.27 (0.054)	ND (0.059)	ND (0.00097)
Methyl tert-butyl ether	8500	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.00097)
Toluene	10000	100	ND (0.056)	ND (0.055)	ND (0.055)	ND (0.058)	ND (0.053)	0.39 (0.054)	ND (0.054)	ND (0.056)	ND (0.054)	ND (0.059)	ND (0.00097)
1,2,4-Trimethylbenzene	4700	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0048)
1,3,5-Trimethylbenzene	4700	93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0048)
Xylenes (total)	7900	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.00097)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	0.52 (0.04)	ND (0.04)	0.11 J (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Benzo(a)anthracene	130	340	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Benzo(a)pyrene	91	46	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Benzo(b)fluoranthene	76	170	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Benzo(g,h,i)perylene	190000	180	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Chrysene	760	230	ND (0.04)	0.078 J (0.04)	ND (0.04)	ND (0.04)	ND (0.039)	ND (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	2.9 (0.04)	0.049 J (0.04)	0.49 (0.04)	ND (0.04)	0.15 J (0.039)	2 (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	0.17 J (0.056)	0.06 J (0.055)	0.42 (0.055)	ND (0.058)	ND (0.053)	7 (0.054)	0.96 (0.054)	ND (0.056)	ND (0.054)	0.061 J (0.059)	ND (0.036)
Phenanthrene	190000	10000	6.2 (0.08)	0.16 J (0.04)	1.1 (0.04)	ND (0.04)	0.26 (0.039)	4 (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Pyrene	96000	2200	0.39 (0.04)	ND (0.04)	0.17 J (0.04)	ND (0.04)	ND (0.039)	0.29 (0.04)	ND (0.035)	ND (0.04)	ND (0.036)	ND (0.04)	ND (0.036)
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.8 (2.5)
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	AOI3-BH-15-1	AOI3-BH-15-1	AOI3-BH-15-2	AOI3-BH-15-2	AOI3-BH-15-3	AOI3-BH-15-3	AOI3-BH-15-4	AOI3-BH-15-4	AOI3-BH-15-5	AOI3-BH-15-5	AOI3-BH-15-6		
Matrix	Subsurface Soil	Surface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil		
Collection Depth (ft bgs)	10 - 11	0 - 2	0 - 2	12 - 14	0 - 2	12 - 13	0 - 2	12 - 13	0 - 2	12 - 14	0 - 2		
Sample Date	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/5/2015	10/5/2015	10/5/2015		
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	0.285 (0.056)	0.0023 (0.00062)	0.00034 J (0.0006)	ND (0.00058)	ND (0.00064)	ND (0.056)	ND (0.061)	ND (0.0005)	ND (0.00059)	ND (0.069)	ND (0.0008)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	1.57 (0.22)	0.0114 (0.0025)	ND (0.0024)	ND (0.0023)	ND (0.0026)	0.183 J (0.22)	ND (0.24)	0.00023 J (0.002)	ND (0.0023)	1.76 (0.28)	ND (0.0032)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	3.6 (0.11)	0.0119 (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.11)	ND (0.12)	ND (0.001)	ND (0.0012)	0.813 (0.14)	ND (0.0016)
Methyl tert-butyl ether	8500	2	ND (0.11)	ND (0.0012)	0.00069 J (0.0012)	0.0067 (0.0012)	ND (0.0013)	ND (0.11)	ND (0.12)	ND (0.001)	ND (0.0012)	ND (0.14)	ND (0.0016)
Toluene	10000	100	ND (0.11)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.11)	ND (0.12)	ND (0.001)	ND (0.0012)	ND (0.14)	ND (0.0016)
1,2,4-Trimethylbenzene	4700	300	20.5 (0.22)	0.0024 J (0.0025)	0.00032 J (0.0024)	ND (0.0023)	ND (0.0026)	ND (0.22)	0.215 J (0.24)	0.0057 (0.002)	ND (0.0023)	4.49 (0.28)	ND (0.0032)
1,3,5-Trimethylbenzene	4700	93	7.72 (0.22)	ND (0.0025)	ND (0.0024)	ND (0.0023)	ND (0.0026)	ND (0.22)	0.0335 J (0.24)	0.002 (0.002)	ND (0.0023)	0.935 (0.28)	ND (0.0032)
Xylenes (total)	7900	1000	11.6 (0.11)	0.00074 J (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.11)	ND (0.12)	ND (0.001)	ND (0.0012)	0.894 (0.14)	ND (0.0016)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	0.401 (0.038)	0.0383 (0.037)	0.168 (0.036)	ND (0.039)	ND (0.037)	ND (0.035)	ND (0.039)	ND (0.038)	ND (0.036)	ND (0.043)	0.0768 (0.041)
Benzo(a)anthracene	130	340	0.243 (0.038)	0.0569 (0.037)	0.646 (0.036)	ND (0.039)	0.0411 (0.037)	ND (0.035)	0.0191 J (0.039)	ND (0.038)	0.0368 (0.036)	ND (0.043)	0.242 (0.041)
Benzo(a)pyrene	91	46	0.174 (0.038)	0.0438 (0.037)	0.655 (0.036)	ND (0.039)	0.0437 (0.037)	ND (0.035)	ND (0.039)	ND (0.038)	0.039 (0.036)	ND (0.043)	0.274 (0.041)
Benzo(b)fluoranthene	76	170	0.216 (0.038)	0.0567 (0.037)	0.915 (0.036)	ND (0.039)	0.0462 (0.037)	ND (0.035)	ND (0.039)	ND (0.038)	0.048 (0.036)	ND (0.043)	0.306 (0.041)
Benzo(g,h,i)perylene	190000	180	0.0962 (0.038)	0.0256 J (0.037)	0.448 (0.036)	ND (0.039)	0.083 (0.037)	ND (0.035)	ND (0.039)	ND (0.038)	0.0334 J (0.036)	ND (0.043)	0.227 (0.041)
Chrysene	760	230	0.235 (0.038)	0.0479 (0.037)	0.657 (0.036)	ND (0.039)	0.0354 J (0.037)	ND (0.035)	0.0225 J (0.039)	ND (0.038)	0.0363 (0.036)	ND (0.043)	0.301 (0.041)
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	3.37 (0.038)	0.112 (0.037)	0.0368 (0.036)	ND (0.039)	ND (0.037)	ND (0.035)	1.19 (0.039)	0.0359 J (0.038)	ND (0.036)	0.0416 J (0.043)	0.0275 J (0.041)
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	3.23 (0.038)	0.0651 (0.037)	0.0693 (0.036)	ND (0.039)	ND (0.037)	ND (0.035)	ND (0.039)	ND (0.038)	ND (0.036)	0.122 (0.043)	0.0209 J (0.041)
Phenanthrene	190000	10000	4.1 (0.38)	0.202 (0.037)	0.498 (0.036)	ND (0.039)	0.0379 (0.037)	0.0303 J (0.035)	2.22 (0.039)	0.0712 (0.038)	0.026 J (0.036)	0.0366 J (0.043)	0.318 (0.041)
Pyrene	96000	2200	0.698 (0.038)	0.109 (0.037)	0.964 (0.036)	ND (0.039)	0.0613 (0.037)	ND (0.035)	0.165 (0.039)	ND (0.038)	0.0632 (0.036)	ND (0.043)	0.42 (0.041)
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	6.6 (2.3)	51.1 (2.2)	166 (2.1)	9.9 (2.4)	41.8 (2.3)	8.1 (2.1)	44.9 (12)	11.3 (2.3)	165 (2.2)	9.8 (2.6)	3100 (13)
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
4 Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.
Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Matrix	Non-Res Direct	Non-Residential	AOI3-BH-15-6	AOI3-BH-15-7	AOI3-BH-15-7	AOI3-BH-16-001	AOI3-BH-16-002	AOI3-BH-16-003	AOI3-BH-16-004	AOI3-BH-16-006	AOI3-BH-16-007	AOI3-BH-16-008	AOI3-BH-16-009
Collection Depth (ft bgs)	Contact with	Surface Soil MSCs	Soil-to-GW MSCs	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Sample Date	Surface Soil MSCs	Used Aquifer	TDS≤2500	14 - 16	0 - 2	14 - 16	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2
Comments	10/27/2015	10/5/2015	10/27/2015	2/9/2016	2/9/2016	2/9/2016	2/9/2016	2/9/2016	2/9/2016	2/9/2016	3/1/2016	3/1/2016	3/1/2016	3/1/2016
Volatile Organic Compounds														
Benzene	280	0.5	ND (0.025)	ND (0.00055)	0.0026 (0.0006)	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	6.02 (0.1)	ND (0.0022)	0.00041 J (0.0024)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	21.5 (1)	0.0011 (0.0011)	0.00054 J (0.0012)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	ND (0.051)	ND (0.0011)	ND (0.0012)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	ND (0.051)	ND (0.0011)	0.00083 J (0.0012)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	300	49.3 (2)	ND (0.0022)	0.00054 J (0.0024)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	15.4 (2)	ND (0.0022)	ND (0.0024)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	56 (1)	0.0098 (0.0011)	0.0019 (0.0012)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds														
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	0.0744 (0.036)	ND (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	0.02 J (0.036)	0.0159 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	ND (0.036)	0.0161 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	ND (0.036)	0.0208 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	ND (0.036)	0.0192 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	0.0197 J (0.036)	0.0155 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	0.25 (0.036)	ND (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	5.8 (0.18)	ND (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	10000	0.228 (0.036)	ND (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	0.0615 (0.036)	0.0178 J (0.034)	ND (0.047)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals														
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	4.2 (2.2)	65.1 (2.1)	12.6 (2.9)	2800 (0.44)	885 (0.46)	176 (0.29)	342 (0.53)	1800 (0.6)	796 (0.5)	2270 (0.47)	844 (0.61)	
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	AOI3-BH-16-010	AOI3-BH-16-011	AOI4-BH-15-1	AOI4-BH-13-96	AOI4-BH-16-001	AOI4-BH-16-001	AOI4-BH-16-001	AOI4-BH-16-002	AOI4-BH-16-002	AOI4-BH-16-005	AOI4-BH-16-005	AOI4-BH-16-006	
Matrix	Surface Soil	Surface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Surface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	
Collection Depth (ft bgs)	0 - 2	0 - 2	0 - 2	8 - 9	14 - 16	0 - 2	0 - 2	0 - 2	14 - 16	0 - 2	14 - 15	0 - 2	
Sample Date	3/1/2016	3/1/2016	10/9/2015	3/14/2013	7/15/2016	6/21/2016	6/21/2016	6/21/2016	7/18/2016	6/23/2016	6/23/2016	6/23/2016	
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	NA	NA	ND (0.00057)	ND (0.083)	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	NA	NA	NA
Cumene	10000	2500	NA	NA	ND (0.0023)	0.143 J (0.42)	ND (0.0115)	ND (0.0124)	ND (0.0127)	ND (0.012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
Cyclohexane	10000	6900	NA	NA	NA	NA	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	NA	NA	NA
Ethyl Benzene	880	70	NA	NA	ND (0.0011)	0.0535 J (0.083)	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
Methyl tert-butyl ether	8500	2	NA	NA	ND (0.0011)	ND (0.083)	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
Toluene	10000	100	NA	NA	ND (0.0011)	0.0472 J (0.083)	ND (0.00575)	ND (0.00618)	ND (0.00633)	ND (0.00602)	ND (0.0059)	ND (0.00625)	ND (0.00616)
1,2,4-Trimethylbenzene	4700	300	NA	NA	ND (0.0023)	0.145 J (0.42)	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
1,3,5-Trimethylbenzene	4700	93	NA	NA	ND (0.0023)	0.189 J (0.42)	ND (0.00115)	ND (0.00124)	ND (0.00127)	ND (0.0012)	ND (0.00118)	ND (0.00125)	ND (0.00123)
Xylenes (total)	7900	1000	NA	NA	ND (0.0011)	0.26 (0.083)	ND (0.00345)	ND (0.00371)	ND (0.0038)	ND (0.00361)	ND (0.00354)	ND (0.00375)	ND (0.00369)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	NA	NA	NA
Anthracene	190000	350	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Benzo(a)anthracene	130	340	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND,MI (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Benzo(a)pyrene	91	46	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Benzo(b)fluoranthene	76	170	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Benzo(g,h,i)perylene	190000	180	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Chrysene	760	230	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND,MI (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Fluoranthene	130000	3200	NA	NA	NA	NA	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	NA	NA	NA
Fluorene	130000	3800	NA	NA	ND (0.039)	0.181 (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
2-Methylnaphthalene	240	100	NA	NA	NA	NA	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	NA	NA	NA
Naphthalene	66	25	NA	NA	ND (0.039)	ND (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.0236)	ND (0.025)	ND (0.0246)
Phenanthrene	190000	10000	NA	NA	ND (0.039)	0.282 (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	ND (0.00708)	ND (0.00749)	ND (0.00739)
Pyrene	96000	2200	NA	NA	ND (0.039)	0.0538 J (0.11)	ND (0.19)	ND (0.0408)	ND (0.0418)	ND (0.0397)	0.00752 (0.00708)	ND (0.00749)	ND (0.00739)
Metals													
Cobalt	960	130	NA	NA	NA	NA	2.74 (1.15)	9.57 (1.24)	8.43 (1.27)	4.45 (1.2)	NA	NA	NA
Lead	1000	450	409 (0.51)	194 (0.55)	9.7 (2.4)	26.2 (1)	2.73 (0.575)	11.2 (0.618)	6.6 (0.633)	3.99 (0.602)	14.4 (0.59)	8.22 (0.625)	8.07 (0.616)
Nickel	64000	650	NA	NA	NA	NA	6.39 (2.3)	12.5 (2.47)	13.8 (2.53)	7.63 (2.41)	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	5.91 (2.3)	36.8 (2.47)	27.7 (2.53)	8.2 (2.41)	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	21 (5.75)	34.6 (6.18)	42.2 (6.33)	29.4 (6.02)	NA	NA	NA

- Notes:**
- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - Only compounds with at least one detection are shown.
 - Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
 - Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:
 ND - Not Detected
 NA - Not Analyzed
 J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Matrix	Non-Res Direct	Non-Residential	AOI4-BH-16-006	AOI4-BH-16-007	AOI4-BH-16-007	AOI4-BH-16-019	AOI4-BH-16-019	AOI4-BH-16-020	AOI4-BH-16-020	AOI4-BH-16-021	AOI4-BH-16-021	AST-834-LINE-1	AST-834-LINE-2
Collection Depth (ft bgs)	Contact with	Surface Soil MSCs	Soil-to-GW MSCs	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Surface Soil
Sample Date	Surface Soil MSCs	Used Aquifer	TDS≤2500	14 - 15	0 - 2	14 - 15	0 - 2	13 - 15	0 - 2	13 - 15	0 - 2	14 - 15	0 - 0.5	0 - 0.5
Comments	6/23/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/24/2016	6/24/2016	6/22/2016	6/22/2016	11/30/2006	11/30/2006	
Volatile Organic Compounds														
Benzene		280	0.5	0.0237 (0.00123)	ND (0.00129)	ND (0.0437)	ND (0.00125)	ND (0.00114)	<u>0.896 (0.214)</u>	0.00142 (0.00118)	ND (0.00127)	ND (0.00111)	ND (0.033)	ND (0.034)
sec-Butylbenzene		10000	2300	NA	NA	NA	0.00274 (0.00125)	0.00266 (0.00114)	9.76 (0.214)	0.0347 (0.00118)	ND (0.00127)	ND (0.00111)	NA	NA
tert-Butylbenzene		10000	1800	NA	NA	NA	ND (0.00125)	ND (0.00114)	0.603 (0.214)	0.00133 (0.00118)	ND (0.00127)	ND (0.00111)	NA	NA
Cumene		10000	2500	0.00284 (0.00123)	ND (0.00129)	0.12 (0.0437)	ND (0.0125)	ND (0.0114)	5.19 (2.14)	0.0137 (0.0118)	ND (0.0127)	ND (0.0111)	0.086 J (0.066)	ND (0.067)
Cyclohexane		10000	6900	NA	NA	NA	ND (0.00125)	ND (0.00114)	4.1 (0.214)	0.0146 (0.00118)	ND (0.00127)	ND (0.00111)	NA	NA
Ethyl Benzene		880	70	ND (0.00123)	ND (0.00129)	0.271 (0.0437)	ND (0.00125)	ND (0.00114)	11.2 (0.214)	0.0224 (0.00118)	ND (0.00127)	ND (0.00111)	ND (0.066)	ND (0.067)
Methyl tert-butyl ether		8500	2	ND (0.00123)	ND (0.00129)	ND (0.0437)	ND (0.00125)	ND (0.00114)	ND (0.214)	ND (0.00118)	ND (0.00127)	ND (0.00111)	ND (0.033)	ND (0.034)
Toluene		10000	100	ND (0.00615)	ND (0.00645)	ND (0.218)	ND (0.00627)	ND (0.00571)	ND (1.07)	ND (0.00591)	ND (0.00634)	ND (0.00555)	ND (0.066)	ND (0.067)
1,2,4-Trimethylbenzene		4700	300	ND (0.00123)	ND (0.00129)	0.731 (0.0437)	ND (0.00125)	ND (0.00114)	33.9 (0.214)	0.0973 (0.00118)	ND (0.00127)	ND (0.00111)	NA	NA
1,3,5-Trimethylbenzene		4700	93	ND (0.00123)	ND (0.00129)	0.332 (0.0437)	ND (0.00125)	ND (0.00114)	10.5 (0.214)	0.0312 (0.00118)	ND (0.00127)	ND (0.00111)	NA	NA
Xylenes (total)		7900	1000	ND (0.00369)	ND (0.00387)	0.29 (0.131)	ND (0.00376)	ND (0.00343)	13.1 (0.643)	0.0229 (0.00355)	ND (0.0038)	ND (0.00333)	ND (0.066)	ND (0.067)
Semivolatile Organic Compounds														
Acenaphthene		190000	4700	NA	NA	NA	ND (0.0414)	ND (0.0377)	1.88 (0.218)	0.167 (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Anthracene		190000	350	ND (0.00738)	ND (0.00774)	0.131 (0.00694)	ND (0.0414)	ND (0.0377)	0.444 (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Benzo(a)anthracene		130	340	ND (0.00738)	ND (0.00774)	ND (0.00694)	ND (0.0414)	ND (0.0377)	ND (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Benzo(a)pyrene		91	46	ND (0.00738)	ND (0.00774)	ND (0.00694)	ND (0.0414)	ND (0.0377)	ND (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Benzo(b)fluoranthene		76	170	ND (0.00738)	ND (0.00774)	ND (0.00694)	ND (0.0414)	ND (0.0377)	ND (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Benzo(g,h,i)perylene		190000	180	ND (0.00738)	ND (0.00774)	ND (0.00694)	ND (0.0414)	ND (0.0377)	ND (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Chrysene		760	230	ND (0.00738)	ND (0.00774)	ND (0.00694)	ND (0.0414)	ND (0.0377)	ND (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Fluoranthene		130000	3200	NA	NA	NA	ND (0.0414)	ND (0.0377)	0.218 (0.218)	ND (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Fluorene		130000	3800	ND (0.00738)	ND (0.00774)	0.205 (0.00694)	ND (0.0414)	ND (0.0377)	2.37 (0.218)	0.203 (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
2-Methylnaphthalene		240	100	NA	NA	NA	ND (0.0414)	ND (0.0377)	23.6 (0.873)	1.52 (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Naphthalene		66	25	ND (0.0246)	ND (0.0258)	0.0407 (0.0231)	ND (0.0414)	ND (0.0377)	6.15 (0.218)	0.278 (0.039)	ND (0.0418)	ND (0.0366)	0.35 (0.066)	ND (0.067)
Phenanthrene		190000	10000	ND (0.00738)	ND (0.00774)	0.421 (0.00694)	ND (0.0414)	ND (0.0377)	5.7 (0.218)	0.476 (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Pyrene		96000	2200	ND (0.00738)	ND (0.00774)	0.0452 (0.00694)	ND (0.0414)	ND (0.0377)	0.565 (0.218)	0.0417 (0.039)	ND (0.0418)	ND (0.0366)	NA	NA
Metals														
Cobalt		960	130	NA	NA	NA	6.08 (1.25)	4.32 (1.14)	3.75 (1.32)	4.45 (1.18)	5.72 (1.27)	19.8 (1.11)	NA	NA
Lead		1000	450	5.88 (0.615)	7.79 (0.645)	7.25 (0.579)	7.89 (0.627)	7.56 (0.571)	12.4 (0.661)	11.4 (0.591)	7.7 (0.634)	7.21 (0.555)	147 (0.522)	274 (0.574)
Nickel		64000	650	NA	NA	NA	11.4 (2.51)	14.1 (2.28)	11.7 (2.65)	12.7 (2.36)	11.5 (2.54)	10.6 (2.22)	NA	NA
Vanadium		220	680	NA	NA	NA	31.6 (2.51)	14 (2.28)	28.9 (2.65)	30.2 (2.36)	30.8 (2.54)	19.8 (2.22)	NA	NA
Zinc		190000	12000	NA	NA	NA	31.8 (6.27)	36.3 (5.71)	36.8 (6.61)	58.7 (5.91)	32.1 B (6.34)	27.1 B (5.55)	NA	NA

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	AST-834-LINE-3	AST-834-LINE-4	AST-834-LINE-5	AST-834-LINE-6	AST-834-PERIMETER-1	AST-834-PERIMETER-2	AST-834-PERIMETER-3	AST-834-PERIMETER-4	AST-834-PERIMETER-5	AST-834-PERIMETER-6	AST-834-SUB-1		
Matrix	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil		
Collection Depth (ft bgs)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	4.5 - 5		
Sample Date	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006	11/30/2006		
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	ND (0.032)	ND (0.03)	ND (0.032)	ND (0.03)	ND (0.025)	ND (0.03)	0.22 J (0.029)	ND (0.032)	ND (0.031)	ND (0.031)	ND (0.029)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	ND (0.064)	0.53 (0.06)	ND (0.064)	ND (0.06)	ND (0.051)	ND (0.061)	3.5 (0.059)	ND (0.064)	0.96 (0.061)	ND (0.063)	ND (0.057)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	ND (0.064)	0.59 (0.06)	ND (0.064)	ND (0.06)	ND (0.051)	ND (0.061)	7.5 (0.059)	ND (0.064)	0.62 (0.061)	ND (0.063)	ND (0.057)
Methyl tert-butyl ether	8500	2	ND (0.032)	ND (0.03)	ND (0.032)	ND (0.03)	ND (0.025)	ND (0.03)	ND (0.029)	ND (0.032)	ND (0.031)	ND (0.031)	ND (0.029)
Toluene	10000	100	ND (0.064)	ND (0.06)	ND (0.064)	ND (0.06)	ND (0.051)	ND (0.061)	0.081 J (0.059)	ND (0.064)	ND (0.061)	ND (0.063)	ND (0.057)
1,2,4-Trimethylbenzene	4700	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	ND (0.064)	3 (0.06)	ND (0.064)	ND (0.06)	ND (0.051)	ND (0.061)	19 (0.059)	ND (0.064)	1.2 (0.061)	ND (0.063)	ND (0.057)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	ND (0.064)	7.4 (0.06)	0.2 J (0.064)	0.2 J (0.06)	ND (0.051)	ND (0.061)	12 (0.059)	ND (0.064)	12 (0.061)	ND (0.063)	0.063 J (0.057)
Phenanthrene	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	60.5 (0.534)	344 (0.532)	158 (0.544)	87.8 (0.527)	4.66 (0.451)	7.76 (0.527)	7.89 (0.527)	10.3 (0.527)	10.6 (0.506)	7.88 (0.523)	7.08 (0.491)
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	AST-834-SUB-2	AST-834-SUB-3	PB831-01	PB831-02	PB831-03	PB831-04	PB831-05	PB831-06	PB831-07	PB831-08	PB831-09		
Matrix	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Surface Soil		
Collection Depth (ft bgs)	4.5 - 5	4.5 - 5	3	3	3	3	3	3	3	1	1		
Sample Date	11/30/2006	11/30/2006	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/29/2016	8/29/2016		
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	ND (0.028)	ND (0.03)	0.27 J (0.76)	ND (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	0.009 (0.007)	0.003 J (0.004)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	ND (0.056)	ND (0.061)	1.9 (0.76)	5.3 (1.2)	16 (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.007)	ND (0.004)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	ND (0.056)	ND (0.061)	4.5 (0.76)	ND (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.007)	ND (0.004)
Methyl tert-butyl ether	8500	2	ND (0.028)	ND (0.03)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	ND (0.056)	ND (0.061)	1.5 (0.76)	ND (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	0.003 J (0.007)	0.001 J (0.004)
1,2,4-Trimethylbenzene	4700	300	NA	NA	19 (0.76)	0.85 J (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.007)	ND (0.004)
1,3,5-Trimethylbenzene	4700	93	NA	NA	6.1 (0.76)	0.29 J (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.007)	ND (0.004)
Xylenes (total)	7900	1000	ND (0.056)	ND (0.061)	22 (0.76)	0.25 J (1.2)	ND (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	0.002 J (0.007)	ND (0.004)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	ND (0.056)	ND (0.061)	3.7 (0.76)	0.34 J (1.2)	0.52 J (1.7)	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.007)	ND (0.004)
Phenanthrene	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	5.2 (0.456)	4.57 (0.465)	50.1 (1.23)	11.5 (1.5)	31.1 (1.61)	15.1 (1.46)	11.3 (1.51)	8.07 (1.31)	9.96 (1.2)	<u>547 (1.28)</u>	240 (1.41)
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table B1
Historical Soil Sampling Results
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Non-Res Direct	Non-Residential	PB831-10	PB831-11	PB831-12	S-217	S-220	S-280	S-370	S-370	S-370	S-384	S-384
Matrix	Contact with	Soil-to-GW MSCs	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Used Aquifer	5	5	5	1 - 1.5	1 - 1.5	1 - 2	0 - 2	8 - 10	13.5 - 14	1 - 2	9 - 10
Sample Date	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	4/1/2005	4/1/2005	4/28/2010	3/1/2013	3/1/2013	4/22/2013	7/22/2013	7/22/2013
Comments													
Volatile Organic Compounds													
Benzene	280	0.5	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0011)	ND (0.058)	ND (0.11)	0.0013 (0.00099)	ND (0.00097)
sec-Butylbenzene	10000	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0056)	0.95 (0.29)	0.558 (0.53)	0.0085 (0.0049)	ND (0.0048)
Cyclohexane	10000	6900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0011)	ND (0.058)	ND (0.11)	0.0038 (0.00099)	ND (0.00097)
Methyl tert-butyl ether	8500	2	NA	NA	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0011)	ND (0.058)	ND (0.11)	ND (0.00099)	ND (0.00097)
Toluene	10000	100	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0011)	ND (0.058)	ND (0.11)	0.00069 J (0.00099)	ND (0.00097)
1,2,4-Trimethylbenzene	4700	300	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	ND (0.005)	ND (0.0056)	0.0314 J (0.29)	0.0887 J (0.53)	0.0113 (0.0049)	ND (0.0048)
1,3,5-Trimethylbenzene	4700	93	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	ND (0.005)	ND (0.0056)	ND (0.29)	ND (0.53)	0.0044 J (0.0049)	ND (0.0048)
Xylenes (total)	7900	1000	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0011)	ND (0.058)	ND (0.11)	0.0101 (0.00099)	ND (0.00097)
Semivolatile Organic Compounds													
Acenaphthene	190000	4700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	NA	NA	NA	ND (0.4)	ND (0.41)	ND (0.19)	ND (0.041)	ND (0.036)	0.145 (0.12)	0.0626 (0.037)	ND (0.037)
Benzo(a)anthracene	130	340	NA	NA	NA	ND (0.4)	ND (0.41)	0.3 (0.19)	ND (0.041)	ND (0.036)	ND (0.12)	0.0905 (0.037)	ND (0.037)
Benzo(a)pyrene	91	46	NA	NA	NA	ND (0.4)	ND (0.41)	0.22 (0.19)	ND (0.041)	ND (0.036)	ND (0.12)	0.121 (0.037)	ND (0.037)
Benzo(b)fluoranthene	76	170	NA	NA	NA	ND (0.4)	ND (0.41)	0.29 (0.19)	ND (0.041)	ND (0.036)	ND (0.12)	0.128 (0.037)	ND (0.037)
Benzo(g,h,i)perylene	190000	180	NA	NA	NA	ND (0.4)	ND (0.41)	ND (0.19)	ND (0.041)	ND (0.036)	ND (0.12)	0.147 (0.037)	ND (0.037)
Chrysene	760	230	NA	NA	NA	ND (0.4)	ND (0.41)	0.3 (0.19)	ND (0.041)	ND (0.036)	ND (0.12)	0.0986 (0.037)	ND (0.037)
Fluoranthene	130000	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	NA	NA	NA	ND (0.4)	ND (0.41)	ND (0.19)	ND (0.041)	1.23 (0.036)	0.548 (0.12)	0.0345 J (0.037)	ND (0.037)
2-Methylnaphthalene	240	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.4)	ND (0.41)	ND (0.19)	ND (0.041)	ND (0.036)	0.295 (0.12)	0.0513 (0.037)	ND (0.037)
Phenanthrene	190000	10000	NA	NA	NA	ND (0.4)	0.46 (0.41)	0.24 (0.19)	ND (0.041)	2.21 (0.036)	1.2 (0.12)	0.167 (0.037)	ND (0.037)
Pyrene	96000	2200	NA	NA	NA	ND (0.4)	ND (0.41)	0.48 (0.19)	ND (0.041)	0.201 (0.036)	0.107 J (0.12)	0.138 (0.037)	ND (0.037)
Metals													
Cobalt	960	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	9.99 (1.5)	9.95 (1.54)	7.81 (1.53)	10.2 (2.39)	7.58 (2.36)	266 (1.13)	9.9 (2.4)	9.9 (2.2)	14.7 (0.9)	118 (4.2)	8.4 (2.4)
Nickel	64000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	220	680	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

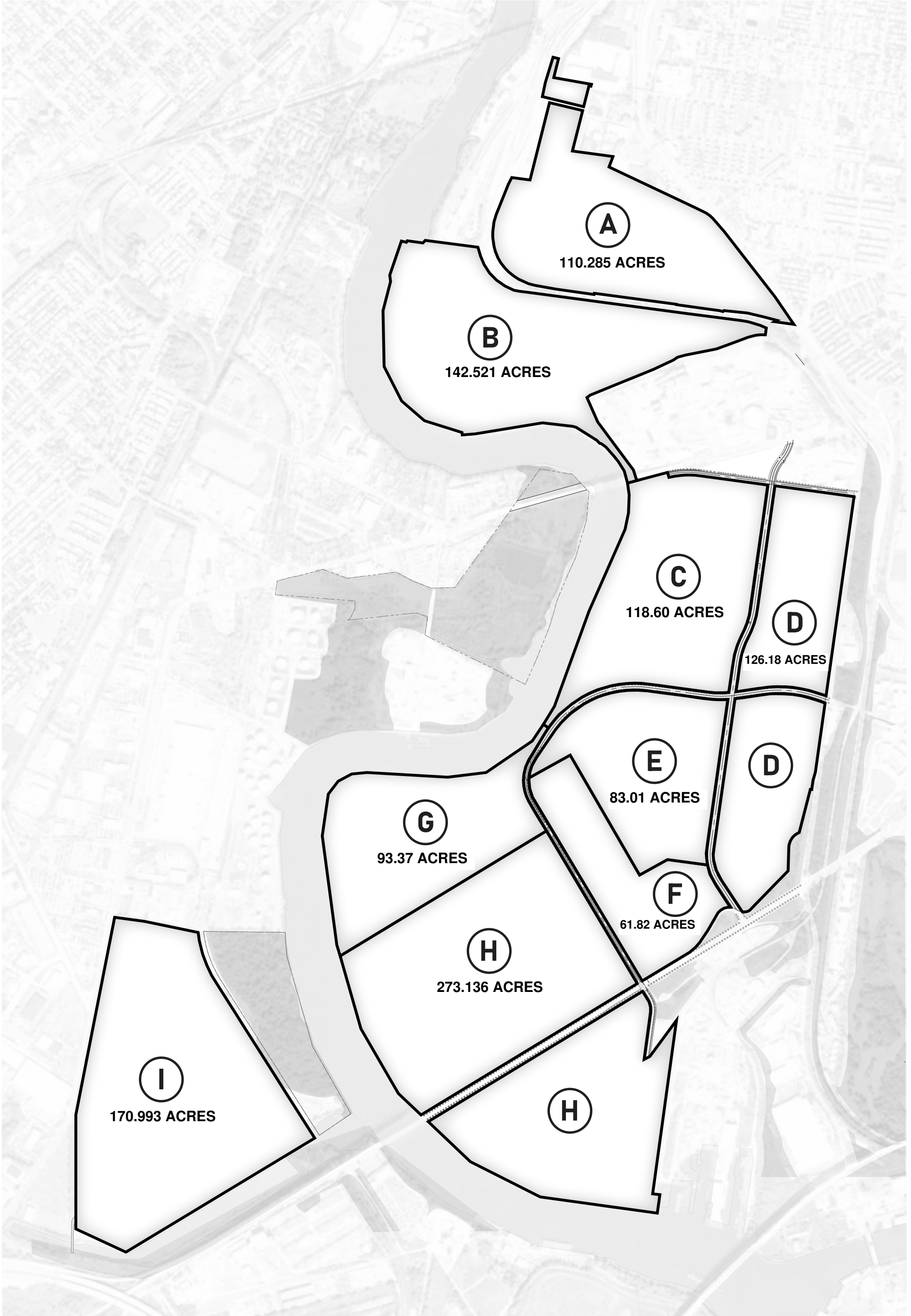
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Appendix C

Individual Parcel Map



INDIVIDUAL PARCEL MAP



Appendix D

Tank Registration Amendment Forms





2250 E Adams Ave • Philadelphia, PA 19124
 Office: 215.533.8890 • Fax: 215.533.8897
 Website • www.NorthStar.com

December 21, 2021

Pennsylvania Department of Environmental Protection
 Southeast Regional Office
 Division of Storage Tanks
 2 East Main Street
 Norristown, Pennsylvania 19401
 Via email: RA@serotanks@pa.gov, ts-tanks@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM)
 Above Ground Storage Tanks Change in Status

To whom it may concern:

Please find attached the Storage Tank Registration/Permitting Application forms that support the information listed in the following table. Four (4) AST's have been removed from the Point Breeze Process Area and One (1) AST was removed from the Girard Point Process Area. In addition to these five removals the status of one (1) AST at the Girard Point Process Area has been changed from Currently In Use "C" to Temporarily Out of Service "T".

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	056A	PB 884	P-602	11/01/2021
Point Breeze Refinery	51-33620	040A	PB 191	P-546	11/23/2021
Point Breeze Refinery	51-33620	057A	PB 883	P-601	11/24/2021
Point Breeze Refinery	51-33620	047A	PB 823	P-576	12/03/2021
Girard Point Refinery	51-33624	015A	GP 225	P-140	11/15/2021
Amended					
Girard Point Refinery	51-33624	066A	GP 973	N/A	11/15/2021

If you have any questions, please do not hesitate to contact me at 410.228.1524

Respectfully Submitted,

Robert Armstrong
 Sr. Project Manager
 NorthStar Contracting Group, Inc.

cc:

Gary Bowman (NorthStar)
 Dr. Kaashini Sollaaste (AMS)
 Thomas Bartsley (AMS)

Edward Wiener (AMS)
 Charles Parksdale (Hillco)
 Mike Leonard (Hillco)



December 14, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	Q58A	PB 884	P-602	11/01/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Sarterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

DEP USE ONLY

51-33620

Facility ID #

Phila Ref Point Breeze

Facility Name

Client ID#

Site ID#

Account #

Auth ID#

APS ID#

Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tank(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PH-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)		
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
3144 West Passyunk Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19145	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P.	Sr.	
Client Contact Title		Phone	Ext	
President		610-636-4574		
E-mail Address			FAX	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site Location Line 1		Site Location Line 2			
Site Location Last Line - City		State	ZIP+4		
Detailed Written Directions to Site					

Site Contact Last Name	First Name	MI	Suffix	
Site Contact Title		Site Contact Firm		
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	
Phone	Ext	FAX	E-mail Address	
NAICS Codes (Two- & Three-Digit Codes - List All That Apply)			6-Digit Code (Optional)	
Site to Client Relationship				

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	Country
Property Owner Contact Last Name		First Name	MI	Suffix
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet		--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1928 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number			Inch(es)	=	Feet	
			Centimeter(s)	=	Meters	
<input type="checkbox"/> Flammable & Combustible Liquid Permit # (if applicable) State or Municipality that issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1	Mailing Address Line 2					
Address Last Line - City	State	ZIP+4	Country			
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title	Phone		Ext			
E-mail Address	FAX					

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
- Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name _____
Employer ID# (EIN) or SSN _____
Mailing Address Line 1 _____
Mailing Address Line 2 _____
Address Last Line - City _____ State _____ ZIP+4 _____
Previous Facility ID# _____

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name _____

Previous Owner Signature _____ Title _____ Date _____

Facility ID# 51-33820

Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed in Place
 Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
058A	I	R	F	01/01/1974	11/01/2021	13,158,800		Crude Oil		
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer: Model:							
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phile Ref Point Breeze

Underground Piping Construction & Corrosion Protection - Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection - Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33820 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (8)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# S1-33620

Facility Name: Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-93820

Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-38620

Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	OSGA					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

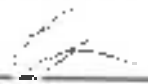
IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature  President Title 12/16/2021 Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Avenue				
Address Last Line - City		State	ZIP+4	Country
Philadelphia		PA	19124	USA
Contact Title		Phone		Ext.
President		610-638-4574		
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
058A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	11/23/2019

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications, that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



December 14, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	040A	PB 191	P-546	11/23/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

**STORAGE TANKS REGISTRATION / PERMITTING
 APPLICATION FORM**

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620 Facility ID # Phila Ref Point Breeze Facility Name	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth ID#
	APS ID#
Master Auth ID#	

I. PURPOSE OF SUBMITTAL
INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tank(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

-
- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)			
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt	
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#			
Philadelphia Energy Solutions Refining and Marketing, LLC					
Individual Last Name	First Name	MI	Suffix	SSN	
Bowman	Gary	P.	Sr.		
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1	Mailing Address Line 2				
3144 West Passayunk Avenue					
Address Last Line - City	State	ZIP+4	Country		
Philadelphia	PA	19145	USA		
Client Contact Last Name	First Name	MI	Suffix		
Bowman	Gary	P.	Sr.		
Client Contact Title	Phone	Ext			
President	610-636-4574				
E-mail Address	FAX				
Gbowman@northstar.com					

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site Location Line 1		Site Location Line 2			
Site Location Last Line - City		State	ZIP+4		
Detailed Written Directions to Site					

Site Contact Last Name	First Name	MI	Suffix	
Site Contact Title	Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	
Phone	Ext	FAX	E-mail Address	
NAICS Codes (Two- & Three-Digit Codes - List All That Apply)			6-Digit Code (Optional)	
Site to Client Relationship				

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	Country
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	--or--	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	--or--	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1985 (NAVD85)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		inch(es)	=	Feet		
	--or--	Centimeter(s)	=	Meters		
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that issued the Permit						

FACILITY OPERATOR INFORMATION

Same as Owner Identified in Section II Different than Owner Identified in Section II; Identified below.

DEP Client ID#	Client Type / Code				
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#			
Individual Last Name	First Name	MI	Suffix	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line - City	State	ZIP+4	Country		
Client Contact Last Name	First Name	MI	Suffix		
Client Contact Title	Phone	Ext			
E-mail Address	FAX				

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City

State

ZIP+4

Previous Facility ID#

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature

Title

Date

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
 Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
040A	T	R	F	01/01/1958	11/23/2021	634,200	Recovered Oil			
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection - Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Primary (Inner) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection - Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Secondary (Outer) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620 Facility Name Phila Ref Point breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None -- Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight -- Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None -- Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight -- Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	040A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

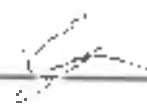
IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required by Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature 	President Title	12/16/2021 Date
--	--------------------	--------------------

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.			
Individual Last Name	First Name	MI	Suffix
Bowman	Gary	P.	Sr.
Additional Individual Last Name	First Name	MI	Suffix
Mailing Address Line 1	Mailing Address Line 2		
2250 East Adams Avenue			
Address Last Line - City	State	ZIP+4	Country
Philadelphia	PA	19124	USA
Contact Title	Phone		Ext.
President	610-636-4574		
E-mail Address			
Gbowman@northstar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1999 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
040 A	Kristian Satterthwaite		5061	AFR	1557	<i>Kristian Satterthwaite</i>	4/12/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1999, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



December 14, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	057A	PB 883	P-601	11/24/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG



STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620 Facility ID #	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth ID#
Phila Ref Point Breeze Facility Name	APS ID#
	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tanks(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)		
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
3144 West Passyunk Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19145	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P.	Sr.	
Client Contact Title		Phone	Ext	
President		610-636-4574		
E-mail Address			FAX	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>	Twp <input type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>	Twp <input type="checkbox"/>	State
Site Location Line 1		Site Location Line 2			
Site Location Last Line – City		State	ZIP+4		
Detailed Written Directions to Site					
Site Contact Last Name		First Name	MI	Suffix	
Site Contact Title		Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line – City		State	ZIP+4		
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)		
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line – City		State	ZIP+4	Country
Property Owner Contact Last Name		First Name	MI	Suffix
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State	ZIP+4			
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	--or--	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	--or--	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		Inch(es)	=	Feet		
	--or--	Centimeter(s)	=	Meters		
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that Issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line - City	State	ZIP+4	Country			
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title		Phone	Ext			
E-mail Address			FAX			

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name _____
Employer ID# (EIN) or SSN _____
Mailing Address Line 1 _____
Mailing Address Line 2 _____
Address Last Line - City _____ State _____ ZIP+4 _____
Previous Facility ID# _____

DATE OF SALE/TRANSFER	
-----------------------	--

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name _____

Previous Owner Signature Title Date

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
057A	C	R	F	01/01/1961	11/24/2021	8,568,600		Crude Oil		
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The **DEP Certified Installer** should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	057A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

	President	12/16/2021
Owner Signature	Title	Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President	610-636-4574			
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
057A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	12/7/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



December 14, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	047A	PB 823	P-576	12/3/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterdwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG


**STORAGE TANKS REGISTRATION / PERMITTING
 APPLICATION FORM**

Before completing this form, read the step-by-step instructions provided in this application package.

51-33820 Facility ID # Phila Ref Point Breeze Facility Name	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth ID#
	AP# ID#
	Master Auth ID#

I. PURPOSE OF SUBMITTAL
INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tank(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

-
- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)		
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
3144 West Passyunk Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19145	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P.	Sr.	
Client Contact Title	Phone	Ext		
President	610-636-4574			
E-mail Address	FAX			
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site Location Line 1		Site Location Line 2			
Site Location Last Line - City		State	ZIP+4		
Detailed Written Directions to Site					

Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title		Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line - City		State	ZIP+4		
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes - List All That Apply)				6-Digit Code (Optional)	
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line - City		State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix		
Property Owner Contact Title		Phone	Ext		
E-mail Address			FAX		

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (If different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	-or-	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	-or-	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		Inch(es)	=	Feet		
	-or-	Centimeter(s)	=	Meters		
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that Issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; Identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line - City		State	ZIP+4	Country		
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title		Phone	Ext			
E-mail Address			FAX			

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client Information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City

State

ZIP+4

Previous Facility ID#

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4003 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature

Title

Date

Facility ID# 51-33620

Facility Name Phlia Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
 Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
047A	T	R	F	01/01/1941	12/03/2021	5,846,400		Low Sulfur Diesel		
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Primary (Inner) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Secondary (Outer) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620 Facility Name Phita Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all US1s	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	047A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

	President	12/16/2021
Owner Signature	Title	Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President	610-636-4574			
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1988 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
047A	Kristian Satterthwaite	API 650	6081	AFR	1567	<i>Kristian Satterthwaite</i>	12/7/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print Legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards, and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1988, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



December 14, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33624 - Girard Point Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	015A	GP 235	P-146	11/15/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33624 Facility ID # Phila Ref Girard Point Facility Name	DEP USE ONLY	
	Client ID#	
	Site ID#	
	Account #	
	Auth ID#	
	APS ID#	
	Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- Register Tank(s) to be Used* Register Tank(s) to be Temporarily Out of Use
 Register Tank(s) to be Removed Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- Changed Owner Information Changed Contact Information
 Changed Facility Information Changed Facility Operator Information
 Changed to Currently In Use Tank(s)* Added Tank(s) to Existing Facility*
 Changed to Temporarily Out of Use Tank(s) Changed to Permanently Closed Tank(s)/Removed
 Changed Product Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2836-PM-BEC0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)		
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
3144 West Passyunk Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19145	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P.	Sr.	
Client Contact Title		Phone	Ext	
President		610-836-4674		
E-mail Address			FAX	
Gbowman@norstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site Location Line 1		Site Location Line 2			
Site Location Last Line - City		State	ZIP+4		
Detailed Written Directions to Site					

Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title		Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line - City		State	ZIP+4		
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes - List All That Apply)				6-Digit Code (Optional)	
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	Country
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degree	Minutes	Seconds	Degree	Minutes	Seconds
Horizontal Accuracy Measure	Feet	-or-	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	-or-	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		Inch(es)	=	Feet		
	-or-	Centimeter(s)	=	Meters		
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1	Mailing Address Line 2					
Address Last Line - City	State	ZIP+4	Country			
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title	Phone			Ext		
E-mail Address	FAX					

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City

State

ZIP+4

Previous Facility ID#

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature

Title

Date

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
015A	T	R	F	01/01/1973	11/15/2021	3,360,000		Light Cycle Oil		
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Molded Plastic Form (Double Wall) (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Primary (Inner) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	Secondary (Outer) Piping Manufacturer:					
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33624 Facility Name Phila Ref Girard Point

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (Includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33624

Facility Name Phila Ret Girard Point

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	015A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

	President	12/16/2021
Owner Signature	Title	Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Avenue				
Address Last Line - City		State	ZIP+4	Country
Philadelphia		PA	19124	USA
Contact Title		Phone		Ext.
President		610-636-4674		
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
015A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	8/14/19

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



November 23, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tank Registration Amendment Form - Change to "T" Status
PADEP Facility ID #51-33624 - Girard Point Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is enclosing the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Amendment Form to change the status to 'Temporarily Out-of-Use' for the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	TOOU Date
Girard Point Refinery	51-33624	066A	GP 973	N/A	11/15/2021

The tank was taken out of service in accordance with the applicable parts of 25 PA Code Sections 245.562 and 245.617, which included completely emptying the contents from the tank, visual examination of the area surrounding the tank, securing the tank against unauthorized entry and all piping entering or exiting the tank were capped or blinded. As allowed under 25 PA Code Section 245.562(e), In-Service and Out-of-Service inspection intervals will be delayed for the above tank. The delayed inspections shall be conducted prior to placing regulated substance in the tank and return the tank to operating status.

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:we
Attachment

cc: RE:PSG



2250 E Adams Ave • Philadelphia, PA 19124
Office: 215.533.8890 • Fax: 215.533.8897
Website • www.NorthStar.com

February 4, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

**Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Forms for the removal of the following five (5) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Point Breeze site.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	011A	PB 881	P-599	01/08/2022
Point Breeze Refinery	51-33620	088A	PB 848	P-595	01/20/2022
Point Breeze Refinery	51-33620	045A	PB 821	P-574	01/26/2022
Point Breeze Refinery	51-33620	046A	PB 822	P-575	01/31/2022
Point Breeze Refinery	51-33620	055A	PB 847	P-594	02/03/2022

If you have any questions, please do not hesitate to contact me at 440-228-1524.

Respectfully Submitted,

Robert Armstrong
Sr. Project Manager
NorthStar Contracting Group, Inc.
Enclosures: Storage Tank Registration/Permitting Application Form

cc:

Gary Bowman (NorthStar)
Dr. Kassahun Sellassie (AMS)
Thomas Barsley (AMS)
Charles Barksdale (Hilco)

Edward Wiener (AMS)
Mike Leonardo (Hilco)

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620 Facility ID # Phila Ref Point Breeze Facility Name	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth ID#
	APS ID#
	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tanks(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed In Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)			
298341		<input checked="" type="checkbox"/> Volunteer Fire Co/EMS Org		<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC					
Individual Last Name	First Name	MI	Suffix	SSN	
Bowman	Gary	P	Sr.		
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1		Mailing Address Line 2			
3144 West Passyunk Avenue					
Address Last Line - City		State	ZIP+4	Country	
Philadelphia		PA	19145	USA	
Client Contact Last Name		First Name	MI	Suffix	
Bowman		Gary	P	Sr.	
Client Contact Title		Phone		Ext	
President		610-636-4574			
E-mail Address				FAX	
gbowman@northstar.com					

III. SITE INFORMATION

DEP Site ID#	Site Name					
EPA ID#	Estimated Number of Employees to be Present at Site					
Description of Site						
County Name	Municipality	City	Boro	Twp	State	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
County Name	Municipality	City	Boro	Twp	State	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Site Location Line 1			Site Location Line 2			
Site Location Last Line – City		State	ZIP+4			
Detailed Written Directions to Site						

Site Contact Last Name	First Name	MI	Suffix	
Site Contact Title		Site Contact Firm		
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line – City		State	ZIP+4	
Phone	Ext	FAX	E-mail Address	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)	
Site to Client Relationship				

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line – City		State	ZIP+4	Country
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State	ZIP+4			
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degree	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	-or-	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	-or-	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		Inch(es)	=		Feet	
	-or-	Centimeter(s)	=		Meters	
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line - City	State	ZIP+4	Country			
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title	Phone		Ext			
E-mail Address	FAX					

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City

State

ZIP+4

Previous Facility ID#

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature

Title

Date

Facility ID#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction; Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction; Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (Includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	011A	088A	045A	046A	055A	
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name : Gary Bowman

	President	02/03/2022
Owner Signature	Title	Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below


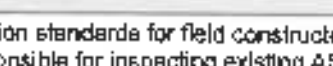
Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Ave.				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title		Phone	Ext.	
President		610-636-4574		
E-mail Address				
gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
011A	Brian Gerner	API 12C	5341	AFMX	1631		2/7/22
088A	Brian Gerner	API 12C	5341	AFMX	1631		2/4/22
046A	Brian Gerner	API 12C	5341	AFMX	1631		2/4/22
046A	Brian Gerner	API 12C	5341	AFMX	1631		2/4/22
055A	Brian Gerner	API 12C	5341	AFMX	1631		2/4/22

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



2250 E Adams Ave • Philadelphia, PA 19124
Office: 215.533.8890 • Fax: 215.533.8897
Website • www.NorthStar.com

March 30, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Via email: RA-storage@pa.gov, ra-tanks@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID # 51-33620 – Point Breeze Refinery

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Form for the removal of the following six (6) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Point Breeze site.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	034A	PB-151	P-534	03/22/2022
Point Breeze Refinery	51-33620	010A	PB-835	P-554	03/30/2022
Point Breeze Refinery	51-33620	052A	PB-836	P-585	03/30/2022
Point Breeze Refinery	51-33620	053A	PB-840	P-587	03/04/2022
Point Breeze Refinery	51-33620	054A	PB-841	P-588	03/16/2022
Point Breeze Refinery	51-33620	086A	PB-843	P-590	03/16/2022

If you have any questions, please do not hesitate to contact me at 480-228-1534.

Respectfully Submitted,

Robert Amis
Sr. Project Manager
NorthStar Contracting Group, Inc.
Enclosure: Storage Tank Registration/Permitting Application Form

cc:

Gary Bowman (NorthStar)
Dr. Kassahun Sellasie (AMS)
Thomas Bamley (AMS)
Charles Barksdale (Ullico)

Edward Wiener (AMS)
Mike Leonardo (Ullico)

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

<p>61-33620 Facility ID #</p> <p>Phila Ref Point Breeze Facility Name</p>	<p>DEP USE ONLY</p> <p>Client ID#</p> <p>Site ID#</p> <p>Account #</p> <p>Auth ID#</p> <p>APS ID#</p> <p>Master Auth ID#</p>
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I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tank(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)			
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org <input type="checkbox"/> State Govt <input type="checkbox"/> Fed Govt			
Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC					
Individual Last Name	First Name	MI	Suffix	SSN	
Bowman	Gary	P	Sr.		
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1		Mailing Address Line 2			
3144 West Passyunk Avenue					
Address Last Line - City		State	ZIP+4	Country	
Philadelphia		PA	19145	USA	
Client Contact Last Name		First Name	MI	Suffix	
Bowman		Gary	P	Sr.	
Client Contact Title		Phone	Ext		
President		610-636-4574			
E-mail Address				FAX	
gbowman@northstar.com					

III. SITE INFORMATION

DEP Site ID# Site Name

EPA ID# Estimated Number of Employees to be Present at Site

Description of Site

County Name Municipality City Boro Twp State

County Name Municipality City Boro Twp State

Site Location Line 1 Site Location Line 2

Site Location Last Line - City State ZIP+4

Detailed Written Directions to Site

Site Contact Last Name First Name MI Suffix

Site Contact Title Site Contact Firm

Mailing Address Line 1 Mailing Address Line 2

Address Last Line - City State ZIP+4

Phone Ext FAX E-mail Address

NAICS Codes (Two- & Three-Digit Codes - List All That Apply) 6-Digit Code (Optional)

Site to Client Relationship

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name Employer ID# (EIN) Dun & Bradstreet ID#

Individual Last Name First Name MI Suffix SSN

Additional Individual Last Name First Name MI Suffix SSN

Mailing Address Line 1 Mailing Address Line 2

Address Last Line - City State ZIP+4 Country

Property Owner Contact Last Name First Name MI Suffix

Property Owner Contact Title Phone Ext

E-mail Address FAX

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	--or--	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	--or--	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number	--or--		Inch(es)	.	Feet	
			Centimeter(s)	.	Meters	
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line - City		State	ZIP+4	Country		
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title			Phone	Ext		
E-mail Address				FAX		

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
- Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name _____
Employer ID# (EIN) or SSN _____
Mailing Address Line 1 _____
Mailing Address Line 2 _____
Address Last Line - City _____ State _____ ZIP+4 _____
Previous Facility ID# _____

DATE OF SALE/TRANSFER	_____
-----------------------	-------

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name _____

Previous Owner Signature _____ Title _____ Date _____

Facility ID#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage 1 Vapor Recovery (18) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or Incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	034A	010A	052A	053A	054A	086A
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1988 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 P.S. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name : Gary Bowman

 Owner Signature	President Title	03-30-2022 Date
--	--------------------	--------------------

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Ave.				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President	610-636-4574			
E-mail Address				
gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a 'Tank Modification Report' form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1988 and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
034A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22
010A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22
052A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22
063A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22
054A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22
086A	Brian Gerner	API 12C	6341	AFMX	1631	<i>Brian Gerner</i>	3/30/22

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications, that the tank(s) have been tested as required by industry standards and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1988, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#



2250 E Adams Ave • Philadelphia, PA 19124
Office: 215.533.8890 • Fax: 215.533.8897
Website • www.NorthStar.com

February 18, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

**Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Forms for the removal of four (4) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Point Breeze site. Please refer to the table on the JD2 Environmental, Inc. cover letter for the four (4) referenced tanks.

If you have any questions, please do not hesitate to contact me at 440-228-1524.

Respectfully Submitted,

A handwritten signature in dark ink, appearing to read "Robert Armstrong", is written over a light blue circular stamp or watermark.

Robert Armstrong
Sr. Project Manager

NorthStar Contracting Group, Inc.

Enclosures: Storage Tank Registration/Permitting Application Form

cc:

Gary Bowman (NorthStar)
Dr. Kassahun Sellassie (AMS)
Thomas Barsley (AMS)
Charles Barksdale (Hilco)

Edward Wiener (AMS)
Mike Leonardo (Hilco)



February 14, 2022

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	042A	PB 253	P-551	2/02/2022
Point Breeze Refinery	51-33620	009A	PB 824	P-577	2/02/2022
Point Breeze Refinery	51-33620	048A	PB 825	P-578	2/02/2022
Point Breeze Refinery	51-33620	051A	PB 833	P-582	2/02/2022

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG



STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620 Facility ID #	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth ID#
Phila Ref Point Breeze Facility Name	APS ID#
	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <input type="checkbox"/> Register Tanks(s) to be Used* | <input type="checkbox"/> Register Tank(s) to be Temporarily Out of Use |
| <input type="checkbox"/> Register Tank(s) to be Removed | <input type="checkbox"/> Register Tank(s) to be Closed in Place |

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- | | |
|--|---|
| <input type="checkbox"/> Changed Owner Information | <input type="checkbox"/> Changed Contact Information |
| <input type="checkbox"/> Changed Facility Information | <input type="checkbox"/> Changed Facility Operator Information |
| <input type="checkbox"/> Changed to Currently In Use Tank(s)* | <input type="checkbox"/> Added Tank(s) to Existing Facility* |
| <input type="checkbox"/> Changed to Temporarily Out of Use Tank(s) | <input checked="" type="checkbox"/> Changed to Permanently Closed Tank(s)/Removed |
| <input type="checkbox"/> Changed Product | <input type="checkbox"/> Changed to Exempt Tank(s) |

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

* For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	Client Type/Code	Fee Kind (check one if applicable)		
298341		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
3144 West Passyunk Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19145	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P.	Sr.	
Client Contact Title		Phone	Ext	
President		610-636-4574		
E-mail Address			FAX	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>	Twp <input type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>	Twp <input type="checkbox"/>	State
Site Location Line 1		Site Location Line 2			
Site Location Last Line – City		State	ZIP+4		
Detailed Written Directions to Site					
Site Contact Last Name		First Name	MI	Suffix	
Site Contact Title		Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line – City		State	ZIP+4		
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)		
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

Same as Tank Owner Identified in Section II. Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line – City		State	ZIP+4	Country
Property Owner Contact Last Name		First Name	MI	Suffix
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State	ZIP+4			
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet	--or--	Meters			
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet	--or--	Meters			
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number		Inch(es)	=	Feet		
	--or--	Centimeter(s)	=	Meters		
Flammable & Combustible Liquid Permit # (if applicable)						
State or Municipality that Issued the Permit						

FACILITY OPERATOR INFORMATION

<input type="checkbox"/> Same as Owner Identified in Section II.		<input type="checkbox"/> Different than Owner Identified in Section II; identified below.				
DEP Client ID#	Client Type / Code					
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN		
Additional Individual Last Name	First Name	MI	Suffix	SSN		
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line - City	State	ZIP+4	Country			
Client Contact Last Name	First Name	MI	Suffix			
Client Contact Title		Phone	Ext			
E-mail Address			FAX			

V. CHANGE OF OWNERSHIP INFORMATION

- All Tanks Changed Ownership at the Facility
 Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name _____
Employer ID# (EIN) or SSN _____
Mailing Address Line 1 _____
Mailing Address Line 2 _____
Address Last Line - City _____ State _____ ZIP+4 _____
Previous Facility ID# _____

DATE OF SALE/TRANSFER	
-----------------------	--

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. Yes No N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name _____

Previous Owner Signature Title Date

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The **DEP Certified Installer** should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Cathodically Protected Steel (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Unprotected Steel (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fiberglass (Single Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Fiberglass (Double Wall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Steel With FRP Coating (Act 100 or Equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Steel with Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Cathodically Protected Double Wall Steel (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Cathodically Protected Steel with Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Double Bottom (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Molded Plastic Form (ASTs Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Fire Protected Double Wall AST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. Molded Plastic Form (Double Wall) (AST's Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. No Dispensing Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Poly-encased Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Single Wall Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Single Wall Flexible (Non-Metallic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. PVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Double Wall - Metallic Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Double Wall - Rigid (FRP) Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Double Wall - Flexible Primary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Suction: Check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Drop tube shutoff device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (AST only) Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes (includes double-walled tanks with required appurtenances)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. 2 Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None or incomplete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some penetrations and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. At all penetrations and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. At some dispensers and liquid tight – Explain: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A. Under all dispensers and liquid tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# 51-33620

Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an in the appropriate box for each tank that was removed or closed in place.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	042A	009A	048A	051A		
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

	President	02-18-2022
Owner Signature	Title	Date

Information & Invoices should be sent to:

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250 East Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President	610-636-4574			
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
042A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	2/11/22
009A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	2/11/22
048A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	2/11/22
051A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	2/11/22

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Appendix E

Tank Closure Reports





COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

51-33620
Facility I.D.

Former Philadelphia Refinery Point Breeze - Tank Group 5
Facility Name

Philadelphia Philadelphia
Municipality County

9/16/2022
Date Prepared

Kevin L. Long
Name of Person Submitting Report
(Please Print)

Terraphase Engineering
Company Name
(If Applicable)

Principal Consultant
Title

Closure Method (Check all that apply):

- AST Removal
- AST Closure-In-Place
- AST Change-In-Service

Site Assessment Results (Check all that apply):

- No Obvious Contamination - Sample Results Meet Standards/Levels
- No Obvious Contamination - Sample Results Do Not Meet Standards/Levels
- Obvious, Localized Contamination - Sample Results Meet Standards/Levels
- Obvious, Localized Contamination - Sample Results Do Not Meet Standards/Levels
- Obvious, Extensive Contamination

CLOSURE METHOD(s):		DEP Tank ID Number:				
Partial Storage Tank System Closure			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tank <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dispenser <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Describe Closure Activities:

The tanks were drained via the in-place piping systems. Associated piping was also drained. Residual product was sold; a waste disposition summary is attached. The interiors of tanks were cleaned. The tanks and piping were dismantled and removed from the site for disposal. When encountered, double bottoms were excavated and removed at a later date. No soil or other backfill material was excavated as part of the closure. Site Assessment sampling was performed in accordance with the Aboveground Storage Tank Closure Work Plan (Terraphase 2021) which was approved by PADEP on April 23, 2021. Site Characterization sampling has also been performed to adequately characterize the horizontal and vertical extent of concentrations greater than applicable MSCs.

Yes N/A

11. Briefly describe the storage tank facility and the nature of the operations which were conducted at the facility (both historical and present) **including use of the storage tank systems:**

Tank Group 05 was located in the central portion of the Former Philadelphia Refinery Complex. The tanks in the group held a variety of materials associated with the petroleum refining process.

- 12. A site location and sampling map of the site, drawn to scale, is attached. See page 11 of 11.
- 13. Original, color photographs of the closure process involving any excavation are attached (i.e., inside of excavation/piping runs, pit water, containment structure and foundation showing condition).
- 14. An amended "Storage Tanks Registration/Permitting Application" Form was submitted to the DEP, Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762.

Date: 12 / 16 / 2021

- 15. If a release was confirmed, the appropriate regional office of DEP was notified by the owner or operator.

Date: 1 / 3 / 2022

Office: Southeast

Yes N/A

16. If tanks were cleaned on-site:
- a. Briefly describe the disposition of usable product: Usable product was drained from the tanks prior to cleaning. Any residual product was discharged to the on-site process sewer and wastewater treatment system.
- b. Briefly describe the disposal of unusable product, sludges, sediments, and wastewater generated during cleaning. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):
None of the tanks in Tank Group 05 required stabilization of tank bottoms. No waste was shipped offsite for disposal.
- c. If tank contents were determined/deemed to be hazardous waste, provide:
- (1) Generator ID Number: _____
- (2) Licensed Hazardous Waste Transporter Name and ID Number: _____
17. If tanks were removed from the site for cleaning:
- a. Provide the name and permit number of the processing, treatment, storage or disposal facility performing the tank cleaning:
- b. If tank contents were determined/deemed to be hazardous waste, provide:
- (1) Generator ID Number: _____
- (2) Licensed Hazardous Waste Transporter Name and ID Number: _____
18. Briefly describe the disposition of tanks/piping (Attach documentation of proper disposal):
All tanks, associated piping were cleaned, demolished and recycled for scrap value. See scrap disposal documentation attached
19. If contaminated soil is excavated:
- a. Briefly describe the disposition and amount _____ (tons) of contaminated soil. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):
- b. If contaminated soil is determined/deemed to be hazardous waste, provide:
- (1) Generator ID Number: _____
- (2) Licensed Hazardous Waste Transporter Name and ID Number: _____

Yes N/A

20. Briefly describe the disposition of and amount _____ (tons) of uncontaminated soil and debris (attach analyses):

21. If the tanks were "Closed-in-Place" provide information below:

a. Briefly describe the tank cleaning process: _____

b. If subcontracted, name and address of company that performed the tank cleaning:

c. How were tanks marked/labeled with permanent closure date: _____

I, Anne R. Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the owner of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.



Signature of Tank Owner

09 / 26 / 2022
Date

Philadelphia Energy Solutions Refining and Marketing LLC
Company Name
(If applicable)

Assistant Secretary
Title

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION II. Tank Handling Information

Facility ID Number 51 - 33620

DEP Tank ID Number(s) 009A, 010A, 042A, 045A, 046A, 047A, 048A, 051A, 052A

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:
Removed tank and piping debris was segregated and loaded into roll-off containers during demolition.

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

5. If tanks were cleaned on-site:
a. Briefly describe the tank cleaning process: Tanks were drained, cut open, rinsed and scrubbed clean of any residuals before demolition.

- b. If subcontracted, name and address of company that performed the tank cleaning:
NorthStar Contracting Group, Inc., 2250 East Adams Avenue, Philadelphia, PA 19124

6. If tanks were "Closed-in-Place", briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry: _____

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, KRISTIAN SATTERTHWAITE, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to
(Print Name)
unsworn falsification to authorities) that I am the certified remover who performed the tank handling activities associated
with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report
(Section I) is true, accurate and complete to the best of my knowledge and belief.

Kristian Satterthwaite
Signature of Certified Remover

09 23, 2022
Date

5081
Remover Certification Number

1557
Company Certification Number

JDZ ENVIRONMENTAL, INC.
Company Name

800 E. WASHINGTON STREET
Street

WEST CHESTER, PA 19380
City/Town, State, Zip

(610) 430-8151
Phone

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 009A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

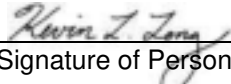
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

09/ 26 / 2022

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 009A (PB 824)

Sample/Analysis Information (Attachment for Section III.)

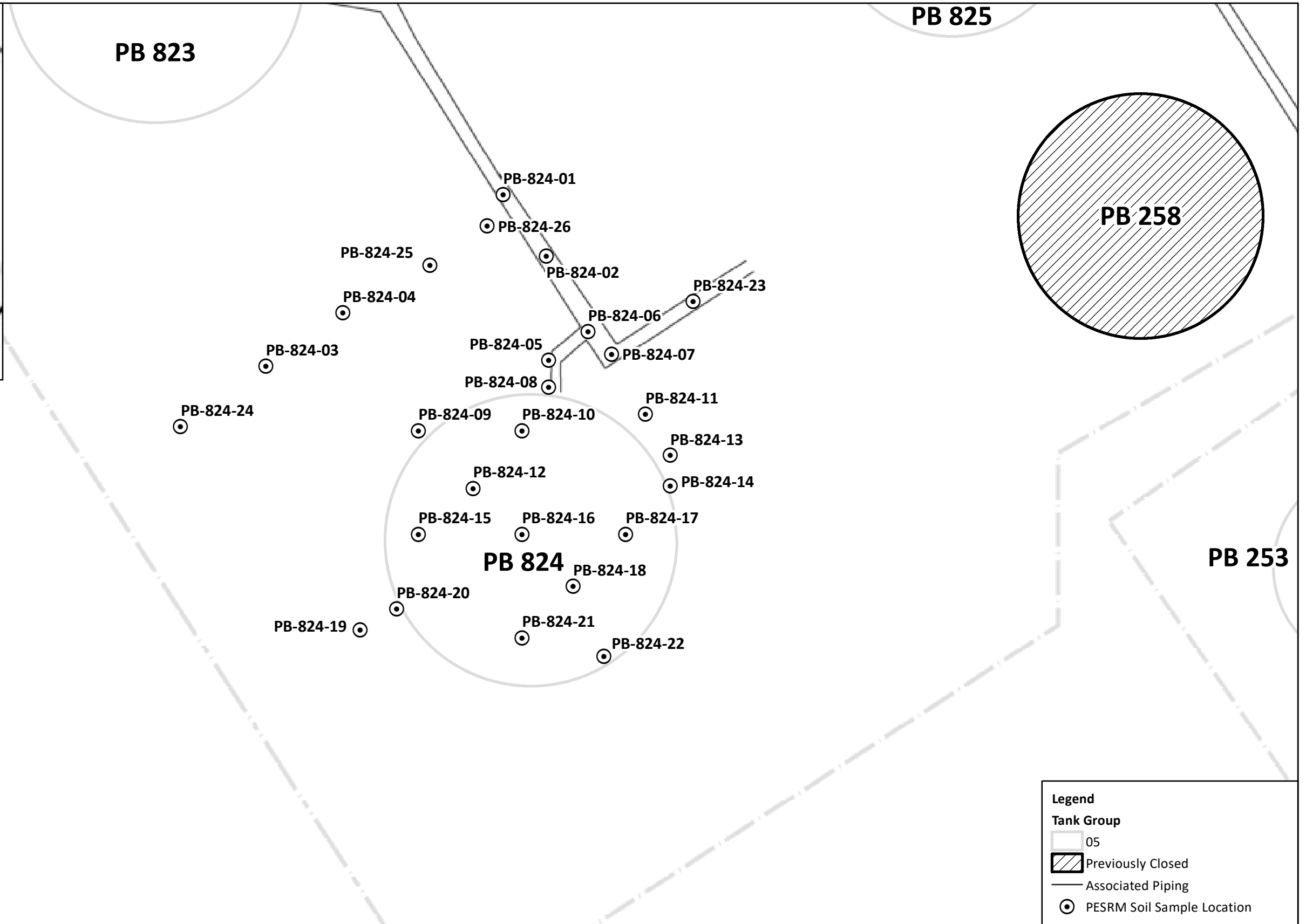
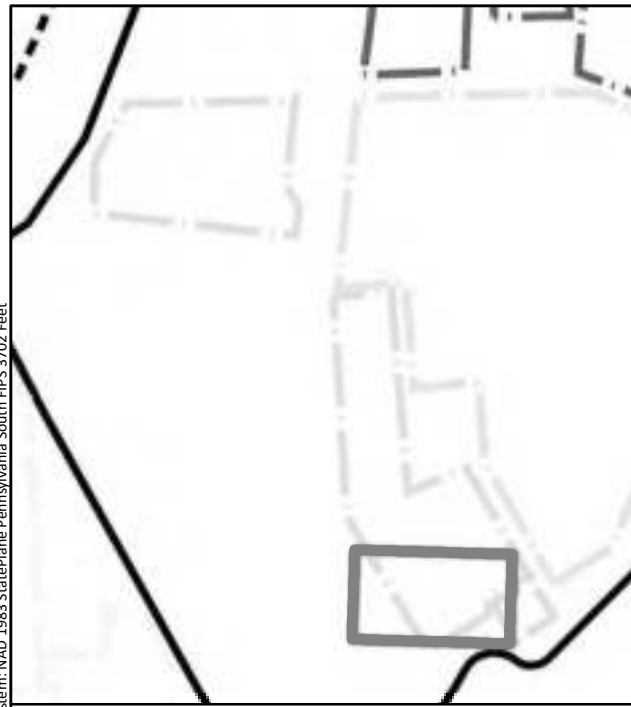
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-824-25	PB-824-25-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00093	7/7/2022	7/10/2022
PB-824-25	PB-824-25-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/7/2022	7/10/2022
PB-824-25	PB-824-25-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/7/2022	7/10/2022
PB-824-25	PB-824-25-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00098	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.064	0.2	7/7/2022	7/9/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00049	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00098	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00098	7/7/2022	7/10/2022
PB-824-26	PB-824-26-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/7/2022	7/10/2022

Notes:

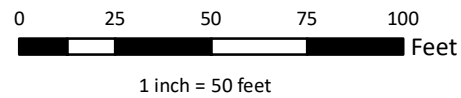
SS -- Soil Sample.

DUP-34 is a field duplicate associated with sample PB-824-08-SS01.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank Group 05\For AST Closure Report\Figure 1_009A (PB 824).mxd 7/14/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Tank Group 05
	Previously Closed
	Associated Piping
	PESRM Soil Sample Location



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 009A (PB 824) Figure 1
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		



Photograph 1:

View of Tank 009A (PB 824) prior to demolition.



Photograph 2:

View of Tank 009A (PB 824) during demolition.



Photograph 3:

View of pad following demolition and scrap pile.



Photograph 4:

View of pad following demolition and scrap pile.



Photograph 5:

View of former tank location following demolition.

Product Movement and Waste Disposal Documentation (Tank 009A)



PES Project Load Ticket

S120103

Load Ticket: 17428

Date: 11-23-21

Sold to: Allegany **Scrap**
Location: Tank 224
Carrier: Allegany

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P1S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCs Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 83880 lbs

Tare Weight: 40640 lbs

Net Weight: 43240 lbs

NorthStar Rep. Signature: [Signature]

Received By: _____

HILCO REDEVELOPMENT PARTNERS
3144 W. PASSYUNK AVE
PHILADELPHIA PA 19145

Ticket #: 20032254
Date: 11/23/2021 11:47 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 92409.996
Loads: 6058

DT06-101 - TRACTOR 101 TRAILER DT06- SUPREME
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	21.62 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	93880.00	40640.00	43240.00



NINTENDO

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 010A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

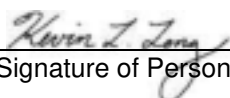
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.


Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 010A (PB 835)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-835-01	PB-835-01-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Benzo(a)pyrene	SW8270D	Soil	0.18	0.15	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.00052	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.00014	0.001	7/6/2022	7/7/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Benzo(a)anthracene	SW8270D	Soil	0.13	0.11	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Pyrene	SW8270D	Soil	0.15	0.11	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270D	Soil	0.22	0.11	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.11	0.15	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Chrysene	SW8270D	Soil	0.12	0.11	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Fluorene	SW8270D	Soil	0.05	0.19	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	0.062	0.19	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Phenanthrene	SW8270D	Soil	0.12	0.11	7/6/2022	7/8/2022
PB-835-01	PB-835-01-SS01	4.0	4.5	Anthracene	SW8270D	Soil	ND	0.11	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.53	0.12	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.099	0.2	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.063	0.2	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.5	0.12	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.29	0.16	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.6	0.12	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	0.55	0.16	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.78	0.12	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Anthracene	SW8270D	Soil	0.18	0.12	7/6/2022	7/8/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00053	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-835-02	PB-835-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.61	0.12	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Pyrene	SW8270D	Soil	0.085	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	0.043	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Chrysene	SW8270D	Soil	0.036	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Fluorene	SW8270D	Soil	0.23	0.19	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	0.41	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	0.036	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Anthracene	SW8270D	Soil	0.06	0.11	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.059	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.014	0.059	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Cumene	SW8260C	Soil	1.1	0.059	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.03	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-03	PB-835-03-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	0.3	0.19	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Benzo(b)fluoranthene	SW8270D	Soil	0.79	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Pyrene	SW8270D	Soil	0.99	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Naphthalene	SW8270D	Soil	0.21	0.21	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Fluorene	SW8270D	Soil	0.2	0.21	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.32	0.16	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Benzo(a)pyrene	SW8270D	Soil	0.66	0.16	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Benzo(a)anthracene	SW8270D	Soil	0.71	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.0011	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Chrysene	SW8270D	Soil	0.76	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Anthracene	SW8270D	Soil	0.32	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Phenanthrene	SW8270D	Soil	1	0.12	7/6/2022	7/8/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Benzene	SW8260C	Soil	ND	0.00054	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.00029	0.0011	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/6/2022	7/7/2022
PB-835-04	PB-835-04-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.096	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.17	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Anthracene	SW8270D	Soil	0.69	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.5	0.048	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.4	0.048	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.31	0.024	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.6	0.096	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	8.3	0.096	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.78	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	4.7	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	8.1	0.96	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Fluorene	SW8270D	Soil	2.9	0.19	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.28	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.1	0.15	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.2	0.12	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	0.17	0.15	7/6/2022	7/8/2022
PB-835-05	PB-835-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.048	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.023	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.24	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.2	0.06	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.2	0.06	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.1	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Anthracene	SW8270D	Soil	0.12	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	1	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-06	PB-835-06-SS01	3.0								

Figure 1 - 010A (PB 835)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-835-07	PB-835-07-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.031	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.1	0.063	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.063	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.063	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.2	0.2	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.032	0.2	7/6/2022	7/8/2022
PB-835-07	PB-835-07-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.35	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.058	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.044	0.19	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.073	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.058	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0084	0.058	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.029	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-08	PB-835-08-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Pyrene	SW8270D	Soil	0.16	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Benzo(a)pyrene	SW8270D	Soil	0.13	0.16	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Benzo(b)fluoranthene	SW8270D	Soil	0.14	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Benzo(g,h,i)perylene	SW8270D	Soil	0.075	0.16	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Chrysene	SW8270D	Soil	0.11	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Fluorene	SW8270D	Soil	0.021	0.2	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Phenanthrene	SW8270D	Soil	0.13	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Benzo(a)anthracene	SW8270D	Soil	0.11	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Toluene	SW8260C	Soil	ND	0.0012	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Cumene	SW8260C	Soil	ND	0.0012	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	Benzene	SW8260C	Soil	ND	0.00061	7/6/2022	7/8/2022
PB-835-09	DUP-35	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Anthracene	SW8270D	Soil	ND	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Pyrene	SW8270D	Soil	0.15	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	0.00057	0.0021	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Cumene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.00052	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Benzo(a)anthracene	SW8270D	Soil	0.14	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Benzo(a)pyrene	SW8270D	Soil	0.2	0.15	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Benzo(b)fluoranthene	SW8270D	Soil	0.21	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Benzo(g,h,i)perylene	SW8270D	Soil	0.09	0.15	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Chrysene	SW8270D	Soil	0.13	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Fluorene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	Phenanthrene	SW8270D	Soil	0.068	0.11	7/6/2022	7/8/2022
PB-835-09	PB-835-09-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	1.1	0.12	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	0.88	0.16	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.87	0.12	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.36	0.16	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.57	0.12	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.55	0.2	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	9.4	0.11	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Anthracene	SW8270D	Soil	0.21	0.12	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.94	0.2	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.71	0.12	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.8	0.11	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.011	0.028	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.72	0.056	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.57	0.056	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.056	7/6/2022	7/8/2022
PB-835-10	PB-835-10-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.63	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00055	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.00098	0.0011	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.00023	0.0011	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.00028	0.0022	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-11	PB-835-11-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	

Figure 1 - 010A (PB 835)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-835-12	PB-835-12-SS01	4.5	5.0	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.001	0.00053	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.00016	0.001	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.00022	0.0021	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-12	PB-835-12-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	0.11	0.11	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Chrysene	SW8270D	Soil	0.1	0.11	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.065	0.15	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Phenanthrene	SW8270D	Soil	0.095	0.11	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	0.14	0.15	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Pyrene	SW8270D	Soil	0.14	0.11	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00051	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-13	PB-835-13-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.15	0.11	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00056	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00053	0.0022	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-14	PB-835-14-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0032	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0032	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.0008	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.0016	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0016	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0032	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.0016	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-15	PB-835-15-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Benzene	SW8260C	Soil	ND	0.00055	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Cumene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Toluene	SW8260C	Soil	ND	0.0011	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-16	PB-835-16-SS01	1	1.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Benzo(a)anthracene	SW8270D	Soil	0.045	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Benzene	SW8260C	Soil	ND	0.00061	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Cumene	SW8260C	Soil	ND	0.0012	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Pyrene	SW8270D	Soil	0.061	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Phenanthrene	SW8270D	Soil	0.04	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Benzo(a)pyrene	SW8270D	Soil	0.05	0.16	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Benzo(b)fluoranthene	SW8270D	Soil	0.056	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.027	0.16	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Chrysene	SW8270D	Soil	0.045	0.12	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Naphthalene	SW8270D	Soil	0.039	0.2	7/6/2022	7/8/2022
PB-835-17	PB-835-17-SS01	4	4.5	Toluene	SW82					

Figure 1 - 010A (PB 835)

Sample/Analysis Information (Attachment for Section III.)

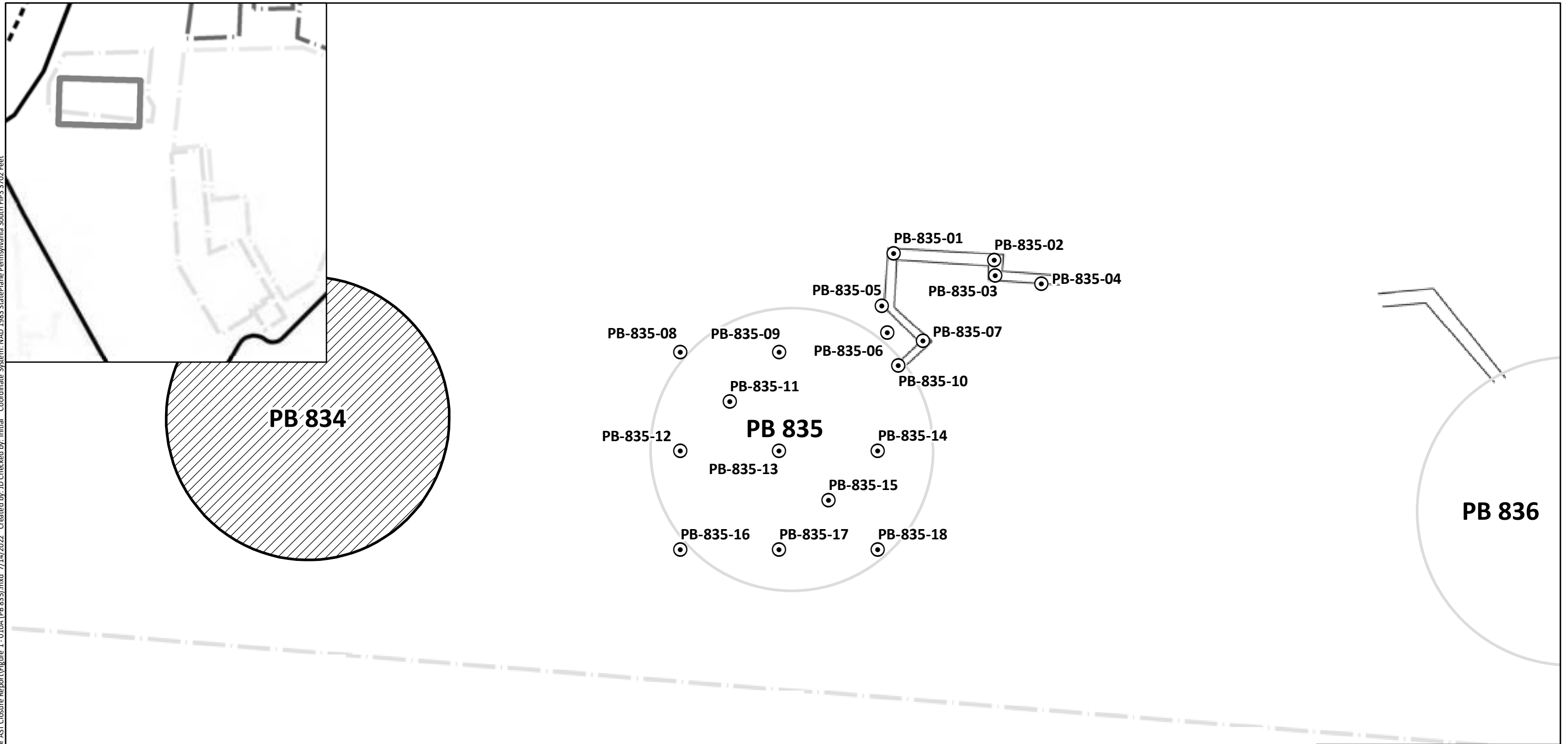
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-835-18	PB-835-18-SS01	3	3.5	Anthracene	SW8270D	Soil	0.1	0.11	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	0.28	0.11	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00049	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00098	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00098	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	0.3	0.14	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00098	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Pyrene	SW8270D	Soil	0.41	0.11	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.34	0.11	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.16	0.14	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Chrysene	SW8270D	Soil	0.29	0.11	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Fluorene	SW8270D	Soil	0.045	0.18	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Naphthalene	SW8270D	Soil	0.17	0.18	7/6/2022	7/8/2022
PB-835-18	PB-835-18-SS01	3	3.5	Phenanthrene	SW8270D	Soil	0.37	0.11	7/6/2022	7/8/2022

Notes:

SS -- Soil Sample.

DUP-35 is a field duplicate associated with sample PB-835-09-SS01.

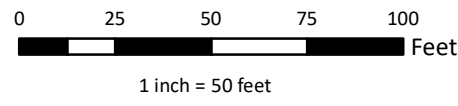
File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\Fer_AST_Closure_Report\Figure 1_010A (PB 835).mxd 7/14/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet




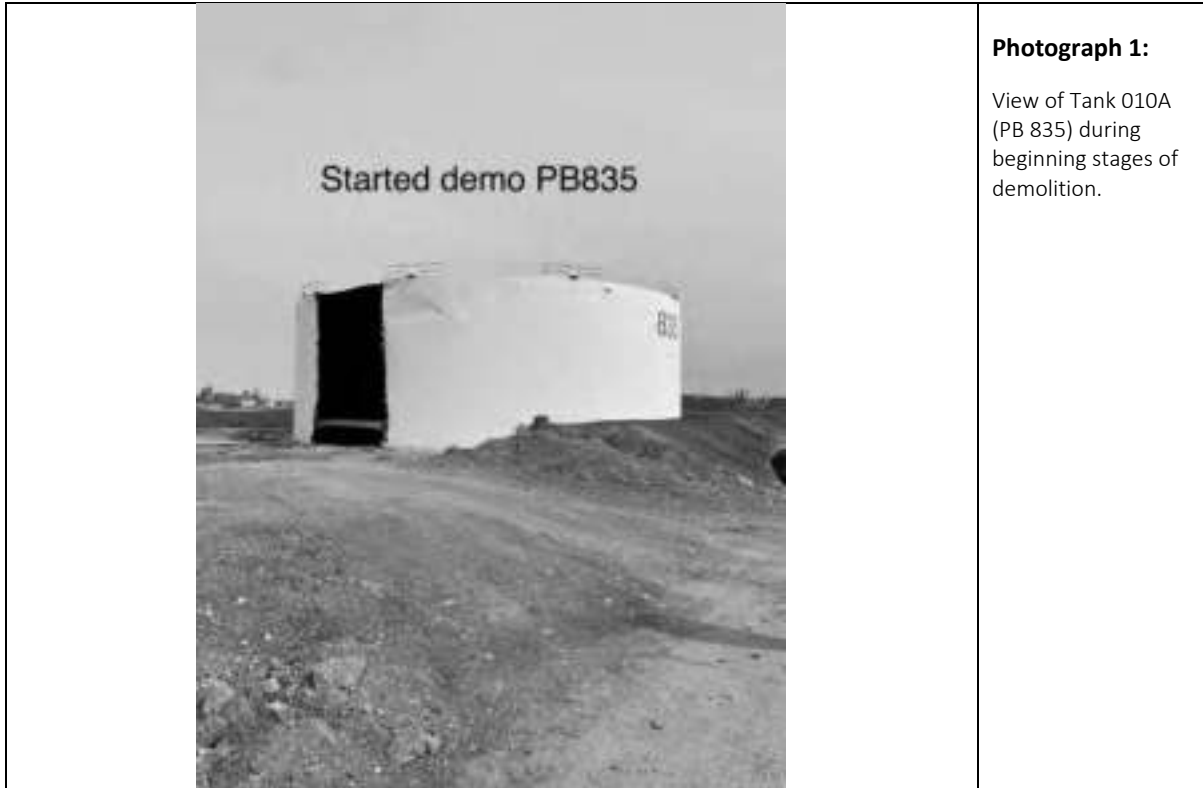
Legend


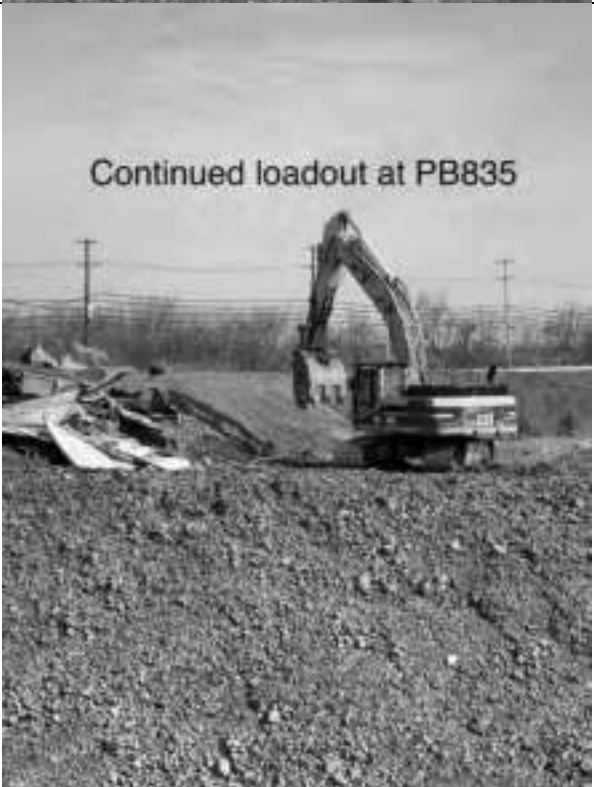
Tank Group

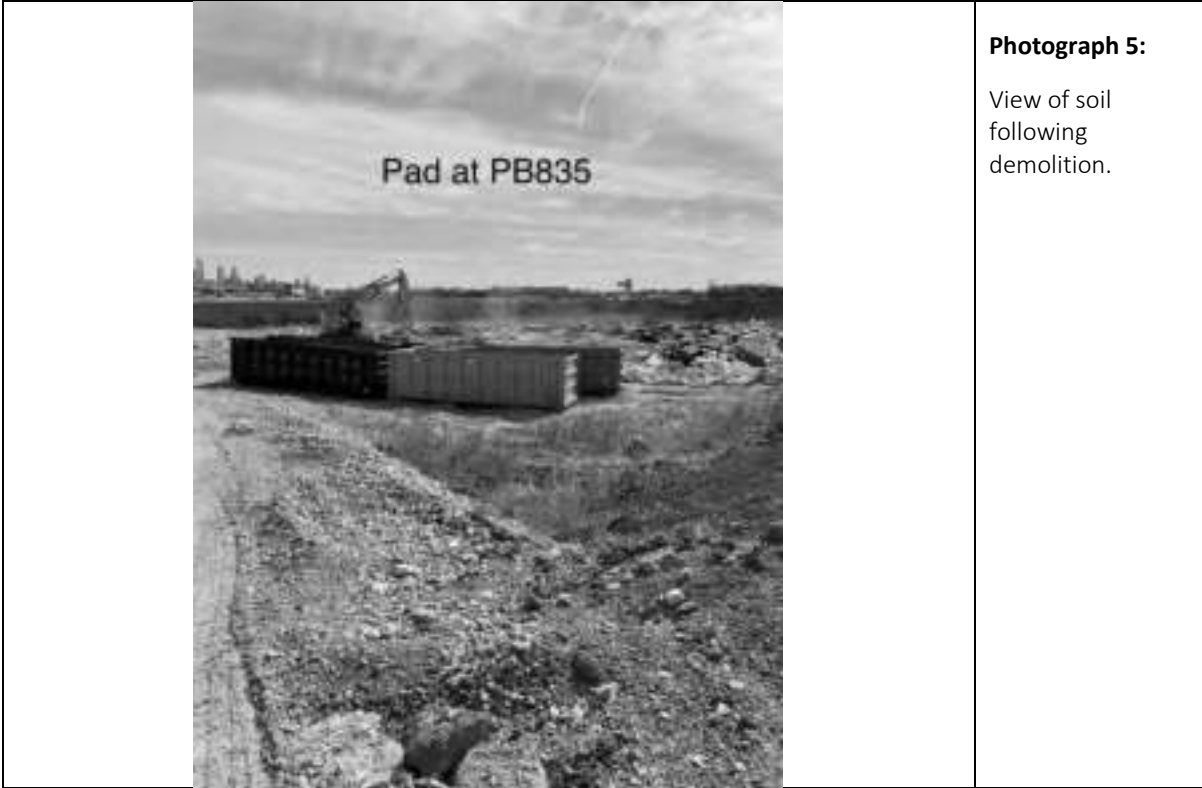
- 05
- Previously Closed
- Associated Piping
- ⊙ PESRM Soil Sample Location



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 010A (PB 835) Figure 1
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		



		<p>Photograph 3: View of pad following demolition and scrap pile.</p>
		<p>Photograph 4: View of scrap pile.</p>



Product Movement and Waste Disposal Documentation (Tank 010A)



PES Project Load Ticket

Load Ticket: 19358

S170103

Date: 03-25-22

Sold to: Allighery Scrap
Location: Tank 833
Carrier: Allighery

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 - D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 72940 lb

Tare Weight: 47440 lb

Net Weight: 25500 lb

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20035304

Date: 03/25/2022 9:25 AM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 139583.571

Loads: 8078

DT327-1109 - ALLEGHENY TRUCK 327-1109

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

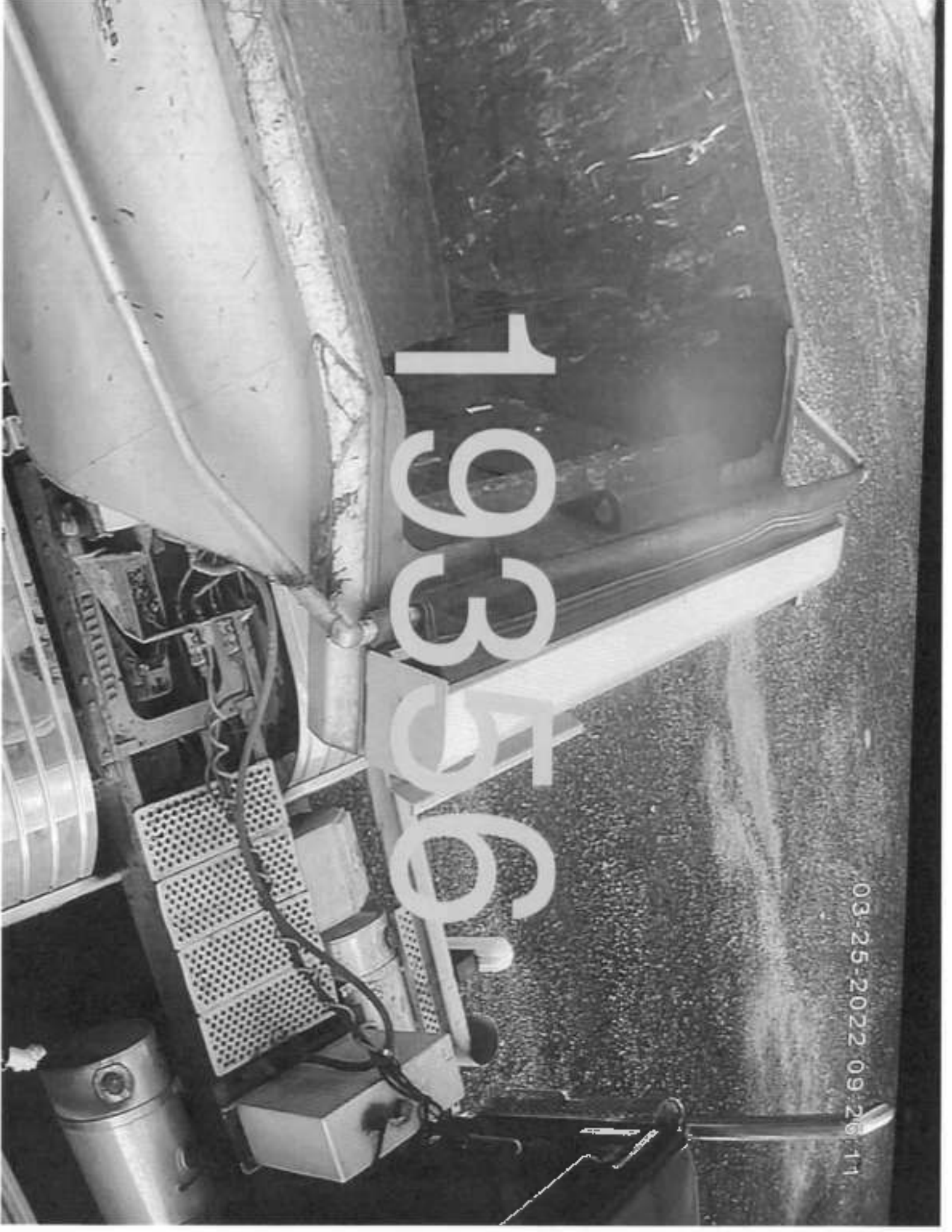
Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	15.77 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	73940.00	42400.00	31540.00

193467

03-25-2022 09:26:11



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 042A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

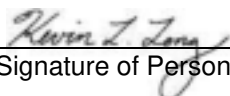
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.


Signature of Person Performing Site Assessment

09/26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 1 - 042A (PB 253)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-253-01	PB-253-01-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.7	0.13	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	14	0.26	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	1.9	0.26	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	Benzene	SW8260C	Soil	3.5	0.065	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	Cumene	SW8260C	Soil	1	0.13	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	9.4	0.13	12/7/2021	12/18/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.00083	0.0023	12/7/2021	12/20/2021
PB-253-01	PB-253-01-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.75	0.52	12/7/2021	12/18/2021
PB-253-01R	PB-253-01R-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.00038	0.00054	7/25/2022	7/26/2022
PB-253-01R	PB-253-01R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.052	0.028	7/25/2022	8/4/2022
PB-253-01R	PB-253-01R-4.0-4.5	4.0	4.5	Naphthalene	SW8270D	Soil	3.3	0.2	7/25/2022	7/27/2022
PB-253-01R	PB-253-01R-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	3.8	0.059	7/25/2022	7/27/2022
PB-253-01R	PB-253-01R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	3.8	0.055	7/25/2022	7/27/2022
PB-253-02	PB-253-02-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	6.4	0.075	12/7/2021	12/20/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	Cumene	SW8260C	Soil	2.3	0.075	12/7/2021	12/20/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.53	0.075	12/7/2021	12/20/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	34	1.5	12/7/2021	12/18/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.53	0.038	12/7/2021	12/20/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	12	0.15	12/7/2021	12/20/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	48	3	12/7/2021	12/18/2021
PB-253-02	PB-253-02-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	12/7/2021	12/20/2021
PB-253-02R	PB-253-02R-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	ND	0.00054	7/26/2022	7/28/2022
PB-253-02R	PB-253-02R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	0.052	0.2	7/26/2022	7/28/2022
PB-253-02R	PB-253-02R-4.5-5.0	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00053	7/26/2022	7/30/2022
PB-253-02R	PB-253-02R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.0002	0.00047	7/26/2022	7/30/2022
PB-253-02R	PB-253-02R-6.0-6.5-1	6.0	6.5	Naphthalene	SW8270D	Soil	ND	0.19	7/28/2022	7/29/2022
PB-253-03	PB-253-03-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.00097	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	Cumene	SW8260C	Soil	ND	0.00097	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.00097	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	ND	0.0039	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.00048	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	12/7/2021	12/18/2021
PB-253-03	PB-253-03-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00034	0.0019	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00043	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00085	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0034	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0017	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0017	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00085	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00085	12/7/2021	12/18/2021
PB-253-04	PB-253-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0017	12/7/2021	12/18/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.019	0.0045	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.043	0.0011	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.19	0.0023	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.015	0.0023	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.00056	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.0011	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	12/7/2021	12/21/2021
PB-253-05	PB-253-05-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.0084	0.0011	12/7/2021	12/21/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0045	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0023	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00057	12/7/2021	12/18/2021
PB-253-06	PB-253-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0023	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.038	0.0051	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0015	0.0026	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0023	0.0026	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00047	0.00064	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.002	0.0013	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	12/7/2021	12/18/2021
PB-253-07	PB-253-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0014	0.0013	12/7/2021	12/18/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.067	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	1.9	0.27	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.12	0.067	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.38	0.067	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.034	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.9	0.13	12/7/2021	12/20/2021
PB-253-08	PB-253-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	4.4	0.13	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00069	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.0014	0.0014	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0028	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.014	0.0055	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.01	0.0028	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.0014	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0052	0.0028	12/7/2021	12/20/2021
PB-253-09	PB-253-09-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.015	0.0014	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.18	0.13	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.065	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.033	0.065	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.4	0.065	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.032	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.033	0.13	12/7/2021	12/20/2021
PB-253-10	PB-253-10-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.91	0.26	12/7/2021	12/20/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.00089	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.00045	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.00089	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Cumene	SW8260C	Soil	ND	0.00089	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	ND	0.0036	12/8/2021	12/19/2021
PB-253-11	PB-253-11-SS01	1.0	1.5							

Table 1 - 042A (PB 253)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-253-12	PB-253-12-SS01	1.0	1.5	Cumene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-12	PB-253-12-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-12	PB-253-12-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	ND	0.0043	12/8/2021	12/19/2021
PB-253-12	PB-253-12-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	ND	0.0058	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0029	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Cumene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.00072	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0029	12/8/2021	12/19/2021
PB-253-13	PB-253-13-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0029	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Benzene	SW8260C	Soil	ND	0.00053	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Ethyl Benzene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Cumene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Naphthalene	SW8260C	Soil	ND	0.0042	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	Toluene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-14	PB-253-14-SS01	0.5	1.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0042	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00052	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-15	PB-253-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Cumene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Toluene	SW8260C	Soil	ND	0.001	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Benzene	SW8260C	Soil	ND	0.00052	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Naphthalene	SW8260C	Soil	ND	0.0042	12/8/2021	12/19/2021
PB-253-16	PB-253-16-SS01	0.0	0.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Cumene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0023	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0023	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Benzene	SW8260C	Soil	ND	0.00057	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Naphthalene	SW8260C	Soil	ND	0.0046	12/8/2021	12/19/2021
PB-253-17	DUP-24	2.0	2.5	Toluene	SW8260C	Soil	ND	0.0011	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	ND	0.0055	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0027	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0027	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Benzene	SW8260C	Soil	ND	0.00068	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Cumene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	12/8/2021	12/19/2021
PB-253-17	PB-253-17-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0027	12/8/2021	12/19/2021
PB-253-18	PB-253-18-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.11	0.032	7/25/2022	8/3/2022
PB-253-18	PB-253-18-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.067	0.027	7/25/2022	8/3/2022
PB-253-18	PB-253-18-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	1.1	0.031	7/25/2022	7/27/2022
PB-253-18	PB-253-18-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.6	0.31	7/25/2022	8/3/2022
PB-253-19	PB-253-19-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	2.8	0.15	7/25/2022	8/3/2022
PB-253-19	PB-253-19-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	6.2	0.058	7/25/2022	8/3/2022
PB-253-19	PB-253-19-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	8.1	0.11	7/25/2022	7/27/2022
PB-253-19	PB-253-19-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	65	0.15	7/25/2022	8/3/2022
PB-253-19	PB-253-19-7.5-8.0	7.5	8.0	Benzene	SW8260C	Soil	43	1.3	8/9/2022	8/10/2022
PB-253-20	PB-253-20-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.43	0.056	7/25/2022	8/3/2022
PB-253-20	PB-253-20-10.0-10.5	10.0	10.5	Benzene	SW8260C	Soil	0.22	0.035	8/9/2022	8/10/2022
PB-253-20	PB-253-20-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	1.2	0.51	7/25/2022	8/4/2022
PB-253-20	PB-253-20-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	120	0.63	7/25/2022	7/27/2022
PB-253-20	PB-253-20-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	360	8	7/25/2022	8/3/2022
PB-253-21	PB-253-21-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	ND	0.00056	7/25/2022	7/26/2022
PB-253-21	PB-253-21-4.0-4.5	4.0	4.5	Naphthalene	SW8270D	Soil	ND	0.18	7/25/2022	7/27/2022
PB-253-22	PB-253-22-10.0-10.5	10.0	10.5	Benzene	SW8260C	Soil	84	0.52	8/9/2022	8/11/2022
PB-253-22	PB-253-22-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	0.05	0.031	7/26/2022	7/28/2022
PB-253-22	PB-253-22-4.0-4.5	4.0	4.5	Naphthalene	SW8270D	Soil	20	1.9	7/26/2022	8/2/2022
PB-253-23	PB-253-23-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	0.0027	0.00047	8/9/2022	8/10/2022
PB-253-23	PB-253-23-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.015	0.00048	8/9/2022	8/11/2022
PB-253-24	PB-253-24-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.00094	0.0013	8/9/2022	8/11/2022
PB-253-24	PB-253-24-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	1.1	0.031	8/9/2022	8/11/2022
PB-253-24	PB-253-24-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	2.2	0.12	8/9/2022	8/10/2022
PB-253-24	PB-253-24-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	8.2	0.059	8/9/2022	8/11/2022
PB-253-25	PB-253-25-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.076	0.00062	8/9/2022	8/11/2022
PB-253-25	PB-253-25-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	28	0.053	8/9/2022	8/11/2022
PB-253-25	PB-253-25-4.0-4.5	4.0	4.5	Benzene	SW8260C	Soil	13	0.59	8/9/2022	8/10/2022
PB-253-25	PB-253-25-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	31	0.061	8/9/2022	8/11/2022

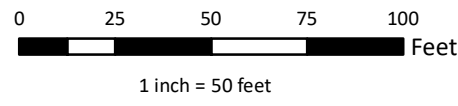
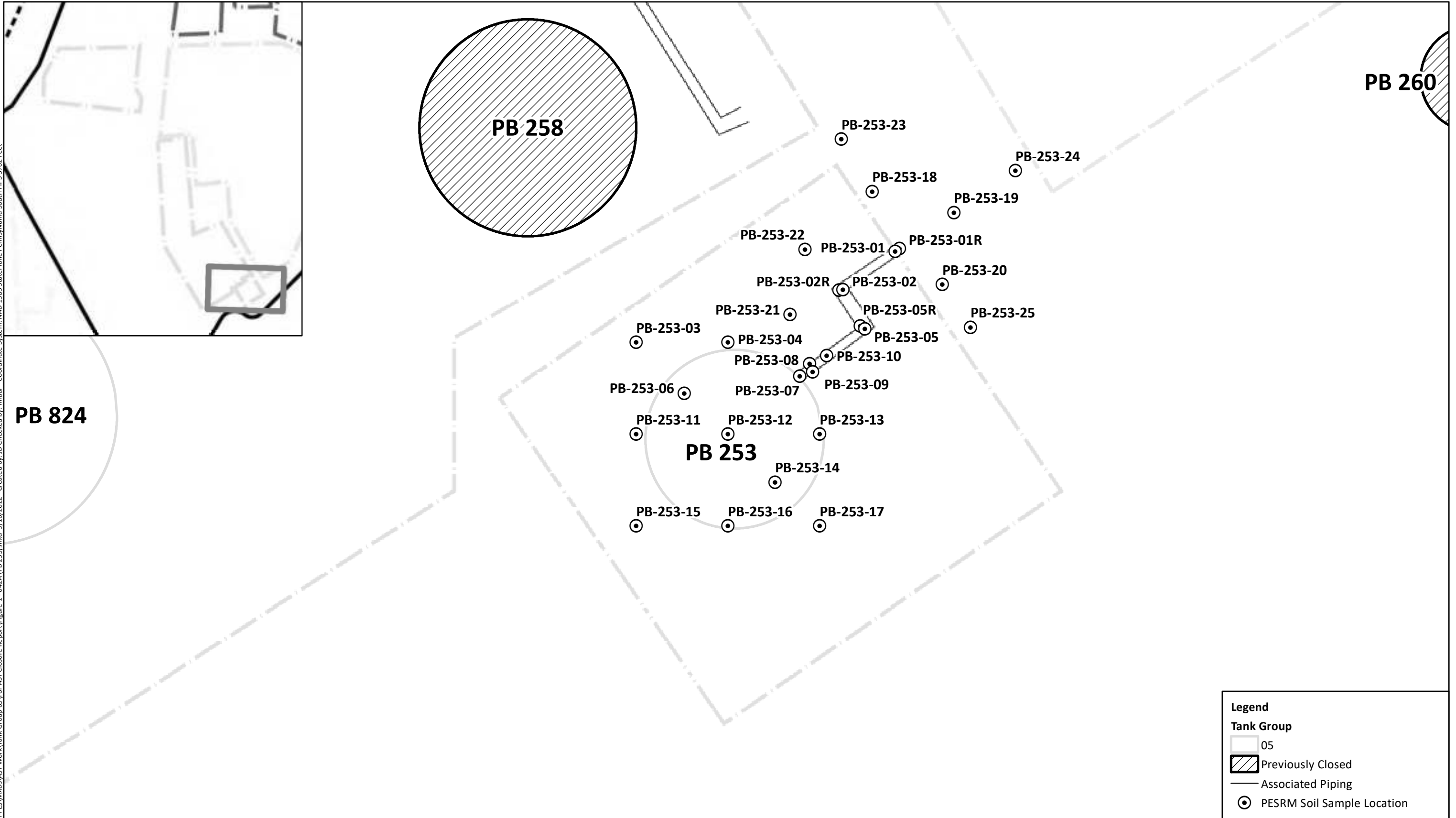
Notes:

SS -- Soil Sample.

-- R Indicates that the sample location was returned to for further delineation.

-- DUP-24 is a field duplicate associated with sample PB-253-17-SS01.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\For_AST_Closure_Report\Figure_1_042A_PB_253.mxd 9/16/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



	SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 042A (PB 253) Figure 1
		PROJECT: Aboveground Storage Tank Closure	
		PROJECT NUMBER: P044.001.002	



Photograph 1:

View of Tank 042A (PB 253) prior to demolition.



Photograph 2:

View of Tank 042A (PB 253) following demolition and scrap piles



Client: Former Philadelphia Refinery

Project: Tank 042A – Tank Group 05 – AST
Closure Report Forms

Project Number: P044.001.002

Photo Log



Photograph 3:
View of scrap pile.



Photograph 4:
View of soil following demolition.



Photograph 5:

View of soil following demolition.

Product Movement and Waste Disposal Documentation (Tank 042A)



PES Project Load Ticket

#S120103

Load Ticket: 17967

Date: 11-18-71

Sold to: Alighieri **Scrap**
Location: Tomb 253
Carrier: Alighieri

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: _____

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 - D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 70110 lbs

Tare Weight: 42450 lbs

Net Weight: 27660 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20032117
Date: 11/18/2021 9:52 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 90190.146
Loads: 5921

DT250-50 - ALLEGHENY TRUCK 250 W/TRAILER 50
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

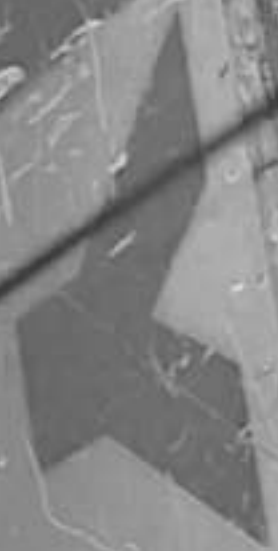
Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	13.83 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	70140.00	42480.00	27660.00

17967



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 045A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

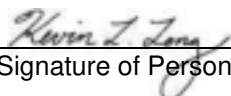
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

09/26/2022

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 045A (PB 821)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-821-01	PB-821-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00078	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0016	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0016	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00039	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00078	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0016	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00039	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0016	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00078	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Lead	SW6010D	Soil	23.1	2.23	7/5/2022	7/7/2022
PB-821-01	PB-821-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00078	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0006	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0006	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-821-02	PB-821-02-SS01	3.0	3.5	Lead	SW6010D	Soil	68.6	2.21	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.031	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.11	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.22	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.083	0.18	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.098	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00063	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0025	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00063	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0025	7/5/2022	7/7/2022
PB-821-03	PB-821-03-SS01	3.0	3.5	Lead	SW6010D	Soil	3.59	2.02	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00099	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00099	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00099	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00099	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Lead	SW6010D	Soil	6.6	2.31	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-04	PB-821-04-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Lead	SW6010D	Soil	3.81	2.4	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS0									

Figure 1 - 045A (PB 821)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Analyzed
PB-821-05	PB-821-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-821-05	PB-821-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00093	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Lead	SW6010D	Soil	5.13	2.47	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00047	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00093	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	7/5/2022	7/7/2022
PB-821-06	PB-821-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00044	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-821-07	PB-821-07-SS01	3.0	3.5	Lead	SW6010D	Soil	4.4	2.13	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00046	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00091	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00091	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00091	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Lead	SW6010D	Soil	3.34	2.16	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-821-08	PB-821-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00091	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00054	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00054	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-09	PB-821-09-SS01	3.0	3.5	Lead	SW6010D	Soil	2.77	2.1	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5							

Figure 1 - 045A (PB 821)

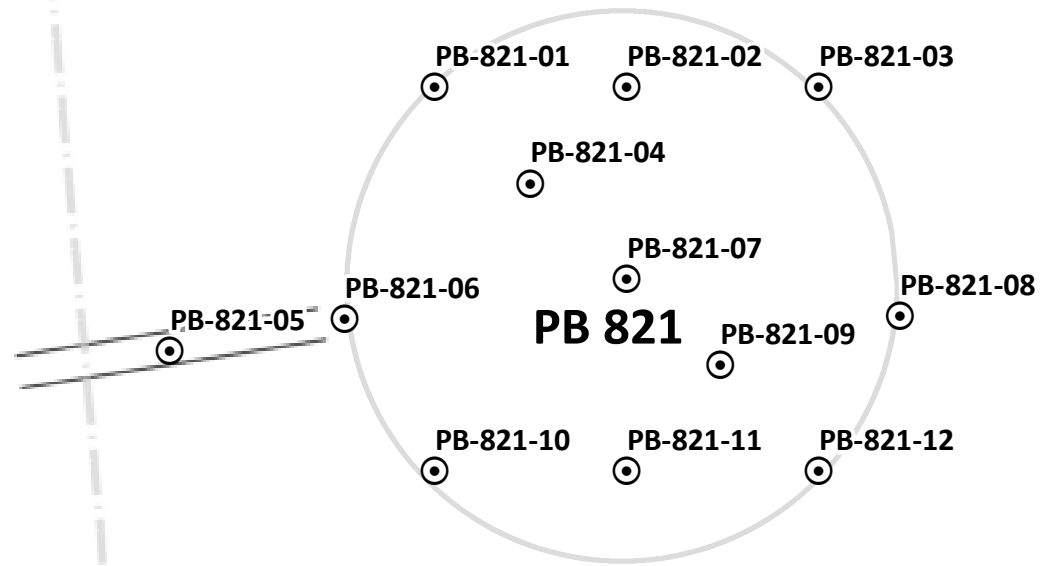
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-821-10	PB-821-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00056	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/5/2022	7/7/2022
PB-821-10	PB-821-10-SS01	3.0	3.5	Lead	SW6010D	Soil	13.7	2.26	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00051	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Lead	SW6010D	Soil	2.82	2.01	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-11	PB-821-11-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	7/5/2022	7/6/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Lead	SW6010D	Soil	6.44	2.01	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00098	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00098	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00098	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-821-12	PB-821-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00098	7/5/2022	7/7/2022

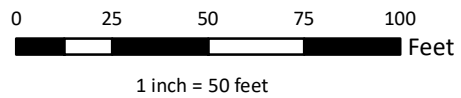
Notes:

SS -- Soil Sample.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank Group 05\For AST Closure Report\Figure 1_045A (PB 821).mxd 7/14/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
Tank Group	
05	
Associated Piping	
PESRM Soil Sample Location	



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 045A (PB 821)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

Figure 1



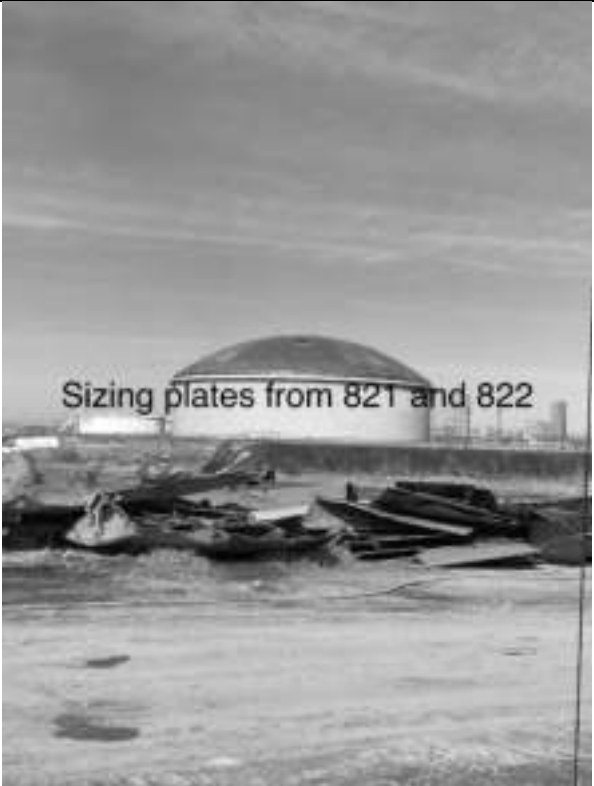

Photograph 1:

View of Tank 045A (PB 821) during beginning stages of demolition.



Photograph 2:

View of Tank 045A (PB 821) during demolition.

		<p>Photograph 3: View of scrap pile.</p>
		<p>Photograph 4: View of scrap pile.</p>



Photograph 5:

View of tank pad following demolition.

Product Movement and Waste Disposal Documentation (Tank 045A)



PES Project Load Ticket

S120103

Load Ticket: 154881

Date: 01-25-22

Sold to: Allright ^{Scrap}
Location: Tank 821
Carrier: Allright

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

Waste Stream

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

- Non Ferrous
- Insulated Copper Wire
 - No. 1 Copper Wire
 - Brass
 - Aluminum
 - Stainless, Grade _____
 - Other Alloy, Grade _____
 - Mixed
 - Other: _____

Disposal Facility: _____
 Carrier: _____
 Truck #: _____
 Container #: _____
 Manifest #: _____
 Profile / Approval #: _____

- Condition
- Prepared
 - Unprepared
 - Green Waste
 - Concrete
 - Masonry
 - Mixed Masonry
 - Wood Only
 - Demo Debris (C&D)
 - Dirt / Fill
 - Sand Fill
 - Crushed Stone
 - Other: _____

Scale Info

Scale Ticket #: _____
 Gross Weight: _____
 Tare weight: _____
 Net weight: _____
 Net Kilogram Conversion (PCB Only): _____

Scale Ticket #: _____
 Gross Weight: 79486 lbs
 Tare Weight: 47000 lbs
 Net Weight: 32486 lbs

NorthStar Rep. Signature: CP

Received By: [Signature]

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

Ticket #: 20033681
Date: 01/25/2022 11:57 AM
Phone: () -
Fax: () -

PHILADELPHIA PA, 19145

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 114331.466
Loads: 7435

DT06-103 - ALLEGHENY TRUCK 06 W/TRAILER 103
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	18.74 In						

Weight Information

Material	Gross	Tare	Net
SCRAP	70400.00	42000.00	37400.00

15488



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 046A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

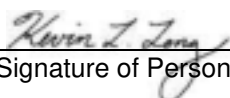
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.


Signature of Person Performing Site Assessment

09/26/2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 046A (PB 822)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-822-01	PB-822-01-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Lead	SW6010D	Soil	6.86	2.33	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00052	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/5/2022	7/7/2022
PB-822-01	PB-822-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0021	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Lead	SW6010D	Soil	6.55	2.36	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-02	PB-822-02-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.17	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.17	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.21	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.21	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Lead	SW6010D	Soil	4.1	2.47	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.13	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-03	PB-822-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Lead	SW6010D	Soil	4.73	2.44	7/5/2022	7/7/2022
PB-822-04	PB-822-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Fluorene	SW8270D	Soil	0.052	0.2	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Lead	SW6010D	Soil	4.65	2.35	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.055	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.055	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.04	0.055	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.028	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	1,2-Dichloroethane						

Figure 1 - 046A (PB 822)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-822-05	PB-822-05-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-05	PB-822-05-SS01	4.0	4.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00086	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0017	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00043	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Lead	SW6010D	Soil	4.91	4.52	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0017	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00043	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00086	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00086	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0017	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00086	7/5/2022	7/7/2022
PB-822-06	PB-822-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0017	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Lead	SW6010D	Soil	4.27	2.34	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-07	PB-822-07-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-08	DUP-32	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Toluene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Lead	SW6010D	Soil	9.81	2.31	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Cumene	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Benzene	SW8260C	Soil	ND	0.00044	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00088	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	DUP-32	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Lead	SW6010D	Soil	74.3	2.32	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00048	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-08	PB-822-08-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00059	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00059	7/5/2022	7/7/2022

Figure 1 - 046A (PB 822)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-822-09	PB-822-09-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Lead	SW6010D	Soil	8.8	2.29	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.0012	7/5/2022	7/7/2022
PB-822-09	PB-822-09-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Cumene	SW8260C	Soil	0.00019	0.001	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Lead	SW6010D	Soil	11.9	2.31	7/5/2022	7/7/2022
PB-822-10	PB-822-10-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/5/2022	7/7/2022
PB-822-11	PB-822-11-SS01	4	4.5	Benzo(a)anthracene	SW8270D	Soil	0.12	0.12	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Chrysene	SW8270D	Soil	0.42	0.12	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Fluorene	SW8270D	Soil	2.7	0.19	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Naphthalene	SW8270D	Soil	6.6	0.19	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Lead	SW6010D	Soil	8.35	2.33	7/5/2022	7/7/2022
PB-822-11	PB-822-11-SS01	4	4.5	Pyrene	SW8270D	Soil	0.43	0.12	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Toluene	SW8260C	Soil	ND	0.056	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Phenanthrene	SW8270D	Soil	5.2	0.12	7/5/2022	7/6/2022
PB-822-11	PB-822-11-SS01	4	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Ethyl Benzene	SW8260C	Soil	0.72	0.056	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Cumene	SW8260C	Soil	1.4	0.056	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Benzene	SW8260C	Soil	ND	0.028	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	5.2	0.11	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.056	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	15	0.22	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Xylenes (total)	SW8260C	Soil	2.28	0.11	7/5/2022	7/8/2022
PB-822-11	PB-822-11-SS01	4	4.5	Anthracene	SW8270D	Soil	0.77	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/5/2022	7/6/2022
PB-822-12	PB-822-12-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Benzene	SW8260C	Soil	0.00017	0.00048	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00097	7/5/2022	7/7/2022
PB-822-12	PB-822-12-SS01	3	3.5	Lead	SW6010D	Soil	8.59	2.31	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Fluorene	SW8270D	Soil	0.22	0.19	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Naphthalene	SW8270D	Soil	ND	0.19	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Phenanthrene	SW8270D	Soil	0.24	0.11	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Lead	SW6010D	Soil	6.94	2.28	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	Toluene	SW8260C	Soil	ND	0.0011	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-13	PB-822-13-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.028	0.0021	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Ethyl Benzene	SW8260C	Soil	0.013	0.0011	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Cumene	SW8260C	Soil	0.0064	0.0011	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Benzene	SW8260C	Soil	ND	0.00053	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0025	0.0021	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00053	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Xylenes (total)	SW8260C	Soil	0.00272	0.0021	7/5/2022	7/8/2022
PB-822-13	PB-822-13-SS01	4.5	5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-822-14	PB-822-14-SS01	3	3.5	Pyrene	SW8270D	Soil	0.58	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.78	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.78	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Chrysene	SW8270D	Soil	0.2	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Fluorene	SW8270D	Soil	4.9	0.98	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Phenanthrene	SW8270D	Soil	14	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Toluene	SW8260C	Soil	0.12	0.054	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Naphthalene	SW8270D	Soil	3.4	0.98	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Lead	SW6010D	Soil	12.6	2.29	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND</			

Figure 1 - 046A (PB 822)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-822-14	PB-822-14-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	1.7	0.054	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Cumene	SW8260C	Soil	0.42	0.054	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Benzene	SW8260C	Soil	0.016	0.027	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	8.5	0.11	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.054	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.027	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	25	0.54	7/6/2022	7/7/2022
PB-822-14	PB-822-14-SS01	3	3.5	Anthracene	SW8270D	Soil	1.1	0.59	7/6/2022	7/8/2022
PB-822-14	PB-822-14-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	8.7	0.11	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Toluene	SW8260C	Soil	0.0057	0.001	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-15	PB-822-15-SS01	3	3.5	Lead	SW6010D	Soil	4.75	2.34	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	0.009	0.001	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Cumene	SW8260C	Soil	0.003	0.001	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Benzene	SW8260C	Soil	0.0011	0.00052	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.049	0.0021	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.16	0.0021	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	0.097	0.0021	7/6/2022	7/8/2022
PB-822-15	PB-822-15-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Lead	SW6010D	Soil	10.6	2.28	7/6/2022	7/8/2022
PB-822-16	PB-822-16-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00047	7/6/2022	7/7/2022
PB-822-16	PB-822-16-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Fluorene	SW8270D	Soil	0.028	0.19	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Phenanthrene	SW8270D	Soil	0.071	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00046	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	7/6/2022	7/7/2022
PB-822-17	PB-822-17-SS01	3	3.5	Lead	SW6010D	Soil	5.91	2.3	7/6/2022	7/8/2022
PB-822-18	PB-822-18-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00052	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/6/2022	7/7/2022
PB-822-18	PB-822-18-SS01	3	3.5	Lead	SW6010D	Soil	4.52	2.33	7/6/2022	7/8/2022
PB-822-19	PB-822-19-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00086	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND			

Figure 1 - 046A (PB 822)

Sample/Analysis Information (Attachment for Section III.)

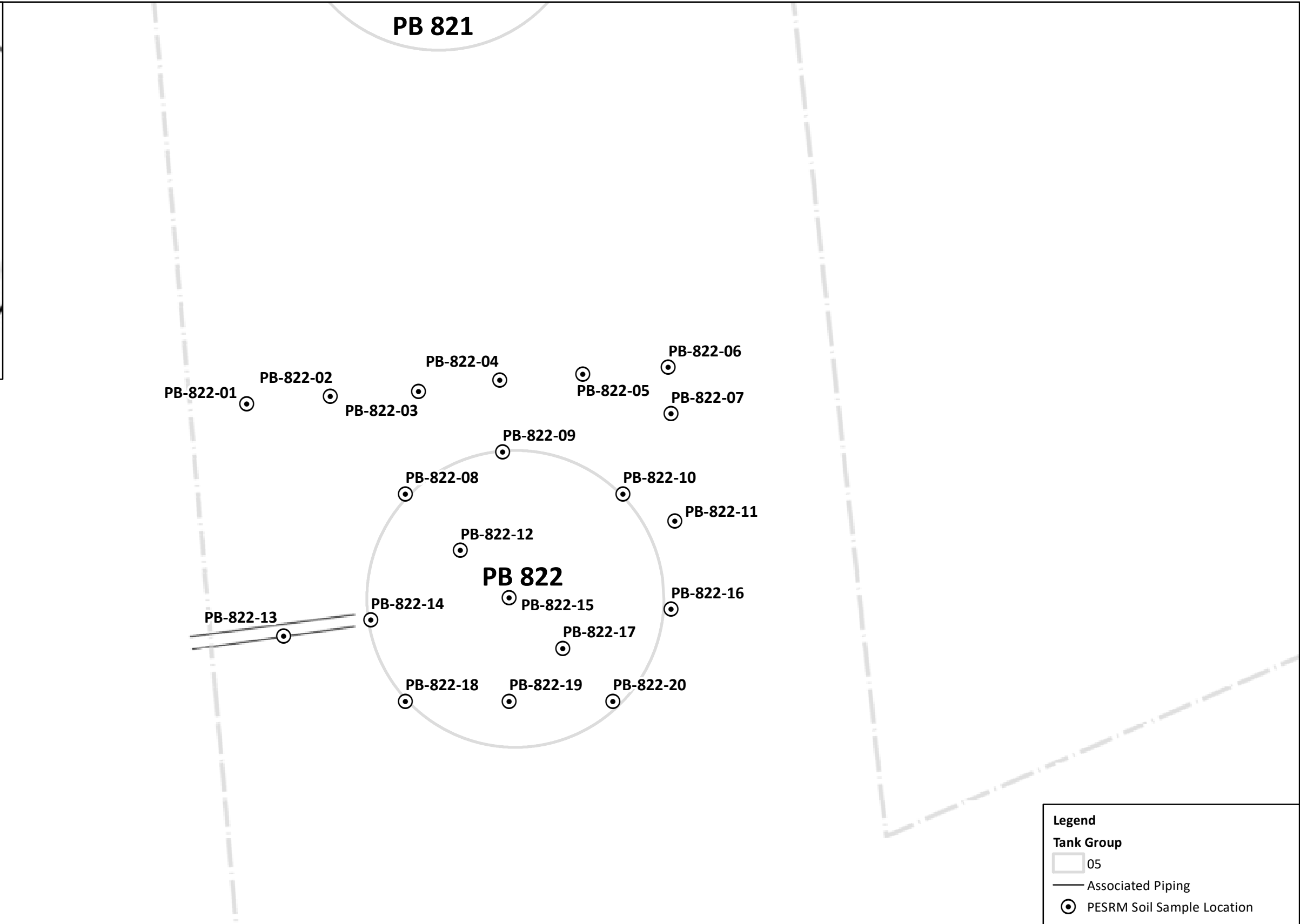
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-822-19	PB-822-19-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00043	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0017	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0017	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00086	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0017	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00043	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00086	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00086	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0017	7/6/2022	7/7/2022
PB-822-19	PB-822-19-SS01	3	3.5	Lead	SW6010D	Soil	4.65	2.28	7/6/2022	7/8/2022
PB-822-20	PB-822-20-SS01	3	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.00096	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00096	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.00096	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Lead	SW6010D	Soil	5.42	2.25	7/6/2022	7/8/2022
PB-822-20	PB-822-20-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00048	7/6/2022	7/7/2022
PB-822-20	PB-822-20-SS01	3	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	7/6/2022	7/7/2022

Notes:

SS -- Soil Sample.

DUP-32 is a field duplicate associated with sample PB-08-SS01.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\For_AST_Closure_Report\Figure_1_046A_PB_822.mxd 7/14/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



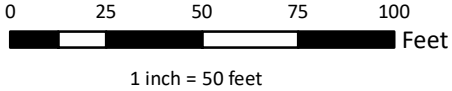
Legend

Tank Group

□ 05

— Associated Piping

⊙ PESRM Soil Sample Location



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 046A (PB 822)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 1	



Photograph 1:

View of Tank 046A (PB 822) prior to demolition.



Photograph 2:

View of Tank 046A (PB 822) during demolition.



Photograph 3:
View of scrap pile.



Photograph 4:
View of scrap pile.



Photograph 5:

View of soil following demolition.



Photograph 6:

View of former tank location following demolition.

Product Movement and Waste Disposal Documentation (Tank 046A)



PES Project Load Ticket

Load Ticket: 15370/1

S120103

Date: 01-20-22

Sold to: Allegany Scrap
Location: Tampa #22
Carrier: Allegany

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tampa plate

- Non Ferrous
- Insulated Copper Wire
 - No. 1 Copper Wire
 - Brass
 - Aluminum
 - Stainless, Grade _____
 - Other Alloy, Grade _____
 - Mixed
 - Other: _____

- Condition
- Prepared
 - Unprepared
 - Green Waste
 - Concrete
 - Masonry
 - Mixed Masonry
 - Wood Only
 - Demo Debris (C&D)
 - Dirt / Fill
 - Sand Fill
 - Crushed Stone
 - Other: _____

Waste Stream

- C&D Demolition Debris
- Non Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (ISCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____
 Gross Weight: 93900 lbs
 Tare Weight: 40480 lbs
 Net Weight: 53420 lbs
 NorthStar Rep. Signature: [Signature]
 Received By: [Signature]

HILCO REDEVELOPMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20033548

Date: 01/20/2022 1:13 PM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 112728.496

Loads: 7322

DT1-56 - ALLEGHENY TRUCK 1 W/TRAILER 56

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	28.71 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	93900.00	40480.00	53420.00

15370

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 047A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

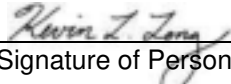
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

09/ 26 /2022

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
							/ /	/ /
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¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 047A (PB 823)

Sample/Analysis Information (Attachment for Section III.)

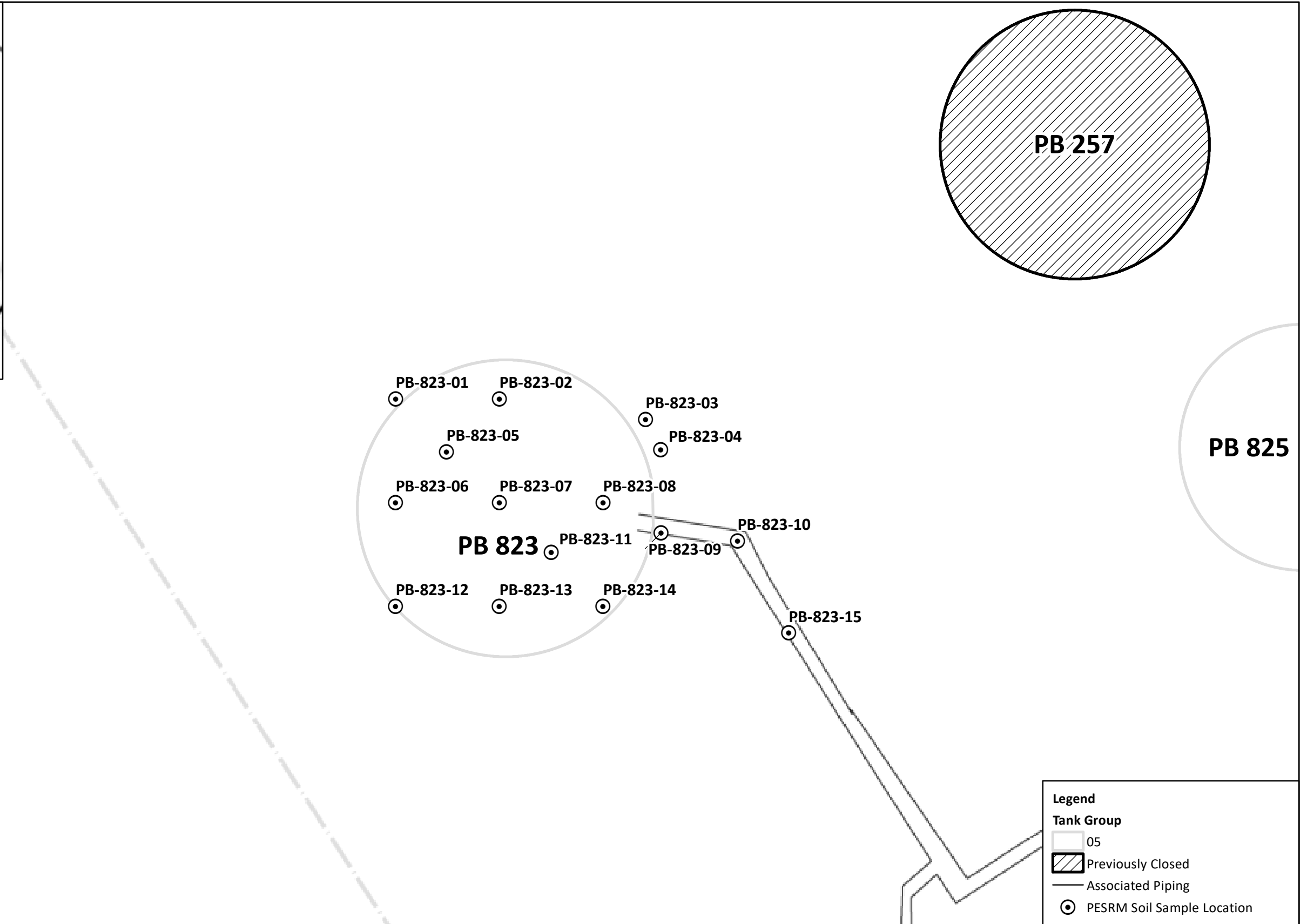
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-823-10	PB-823-10-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00059	7/7/2022	7/8/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-10	PB-823-10-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-11	DUP-36	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Phenanthrene	SW8270D	Soil	0.05	0.11	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.025	0.15	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Pyrene	SW8270D	Soil	0.043	0.11	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/10/2022
PB-823-11	DUP-36	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00061	7/7/2022	7/13/2022
PB-823-11	DUP-36	3.0	3.5	Chrysene	SW8270D	Soil	0.024	0.11	7/7/2022	7/10/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00051	7/7/2022	7/12/2022
PB-823-11	PB-823-11-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00052	7/7/2022	7/12/2022
PB-823-12	PB-823-12-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00058	7/7/2022	7/12/2022
PB-823-13	PB-823-13-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00058	7/7/2022	7/12/2022
PB-823-14	PB-823-14-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Chrysene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Pyrene	SW8270D	Soil	0.11	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	1	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	0.062	0.2	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Fluorene	SW8270D	Soil	0.55	0.2	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Anthracene	SW8270D	Soil	0.094	0.12	7/7/2022	7/9/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00058	7/7/2022	7/12/2022
PB-823-15	PB-823-15-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/7/2022	7/9/2022

Notes:

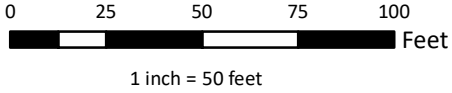
SS -- Soil Sample.

DUP-36 is a field duplicated associated with the sample PB-823-11-SS01.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\Fer_AST_Closure_Report\Figure 1_047A (PB 823).mxd 7/14/2022 Created by: JD Checked by: initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Tank Group 05
	Previously Closed
	Associated Piping
	PESRM Soil Sample Location



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 047A (PB 823)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 1	



Photograph 1:

View of Tank 047A (PB 823) prior to demolition.



Photograph 2:

View of Tank 047A (PB 823) during demolition.



Client: Former Philadelphia Refinery

Project: Tank 047A – Tank Group 05 – AST
Closure Report Forms

Project Number: P044.001.002

Photo Log

Page 1



Photograph 3:

View of pad following demolition and scrap pile.



Photograph 4:

View of scrap pile.



Product Movement and Waste Disposal Documentation (Tank 047A)



PES Project Load Ticket

Load Ticket: 17974

Date: 11-18-21

#S120103

Sold to: Allegany Scrap
Location: Tank #13
Carrier: Allegany

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- R/I Bar
- Other: Tank Mate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste: (flammable D001, corrosive D002, reactive D003, toxicity D004 D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TCSCA)
- PCB (TCSCA)

Disposal facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 87960 lbs

Tare Weight: 42450 lbs

Net Weight: 45510 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20032124
Date: 11/18/2021 11:35 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 90312.936
Loads: 5928

DT250-50 - ALLEGHENY TRUCK 250 W/TRAILER 50
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	20.19 tn						

Weight Information

Material	Gross	Tara	Net
SCRAP	42980.00	42480.00	40390.00



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 048A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

-----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

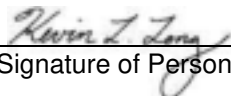
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

09/ 26 /2022

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 048A (PB 825)

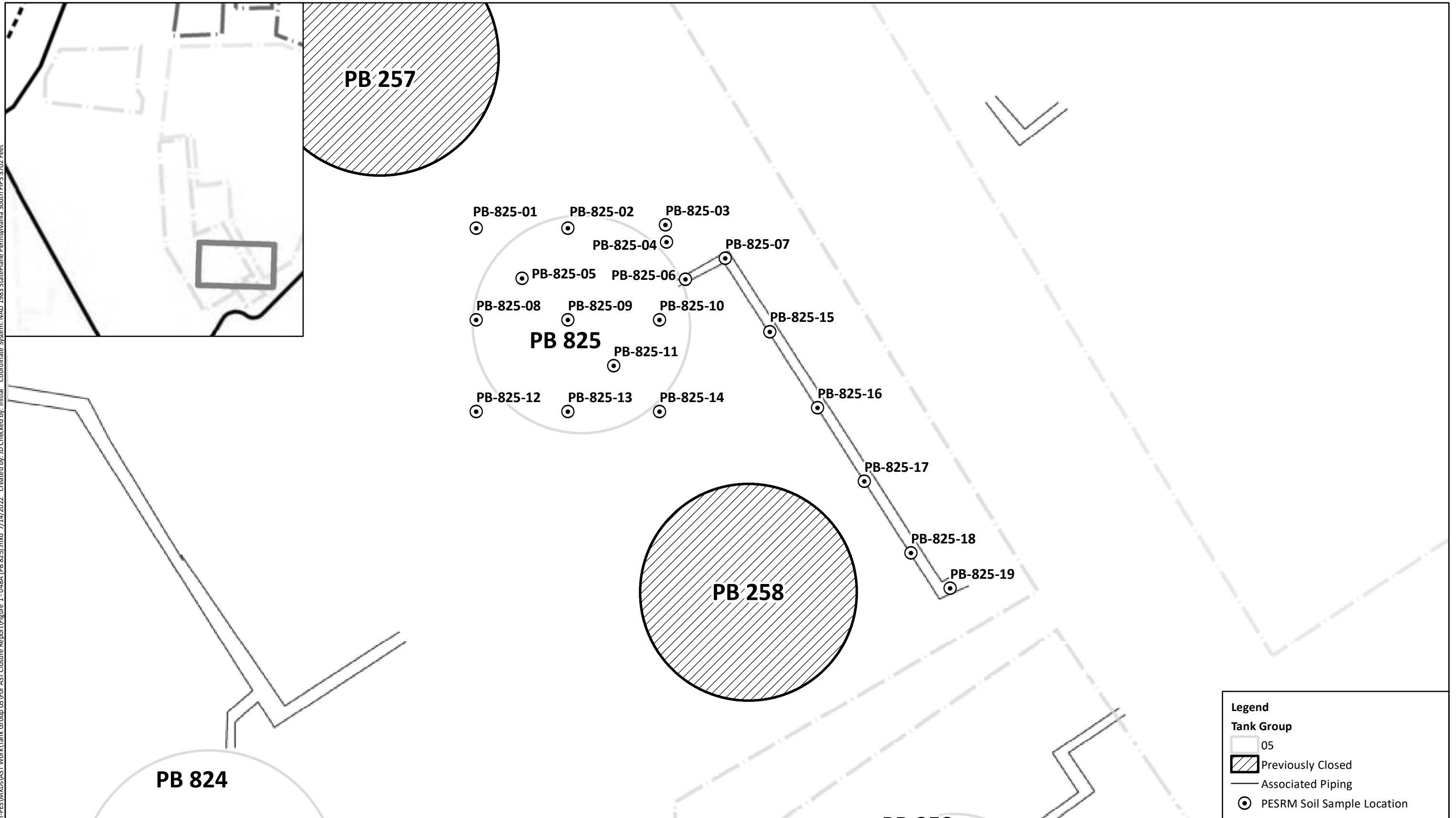
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-825-13	PB-825-13-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/7/2022	7/12/2022
PB-825-13	PB-825-13-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0032	0.0014	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/7/2022	7/10/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0029	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.009	0.0014	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00072	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.039	0.0029	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.12	0.0029	7/7/2022	7/12/2022
PB-825-14	PB-825-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0014	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.16	0.12	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	0.13	0.19	7/7/2022	7/10/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.061	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.018	0.061	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Cumene	SW8260C	Soil	1.4	0.061	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.016	0.12	7/7/2022	7/12/2022
PB-825-15	PB-825-15-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.013	0.03	7/7/2022	7/12/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.002	0.0026	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0003	0.0026	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00064	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.001	0.0013	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	7/7/2022	7/13/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.22	7/7/2022	7/10/2022
PB-825-16	PB-825-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Cumene	SW8260C	Soil	1.6	0.062	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	15	0.12	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.098	0.031	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	3.6	0.062	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.25	0.062	7/7/2022	7/13/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	0.2	0.19	7/7/2022	7/11/2022
PB-825-17	PB-825-17-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	1.1	0.12	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	0.1	0.13	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.27	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	6	0.27	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	4.9	0.27	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.13	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.067	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Cumene	SW8260C	Soil	0.62	0.13	7/7/2022	7/13/2022
PB-825-18	PB-825-18-SS01	1.5	2.0	Naphthalene	SW8270D	Soil	0.39	0.19	7/7/2022	7/11/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.031	7/7/2022	7/14/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Cumene	SW8260C	Soil	5.9	0.062	7/7/2022	7/14/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	18	0.12	7/7/2022	7/14/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	42	1.2	7/7/2022	7/13/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.19	0.062	7/7/2022	7/14/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	1.2	0.19	7/7/2022	7/10/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/7/2022	7/14/2022
PB-825-19	PB-825-19-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	7.5	0.062	7/7/2022	7/14/2022

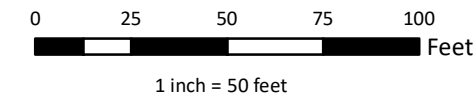
Notes:

SS -- Soil Sample.

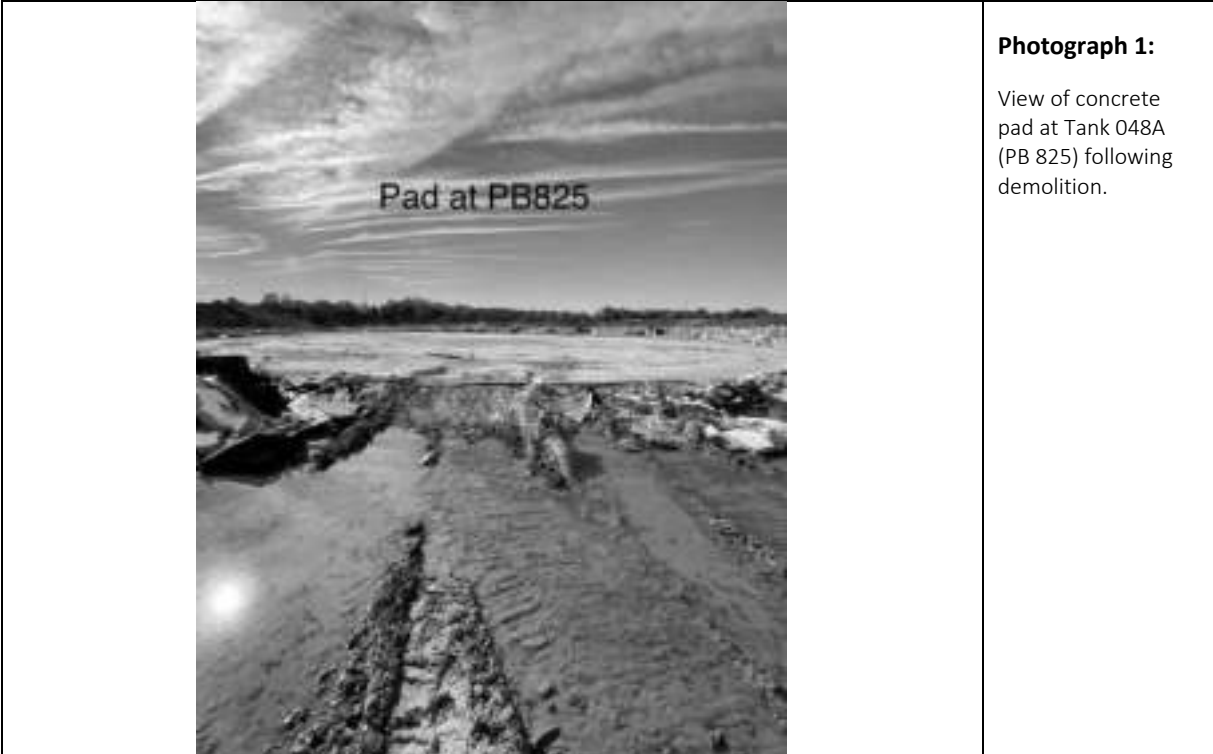
File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\Fer_AST_Closure_Report\Figure 1_048A (PB 825).mxd 7/14/2022 Created by: JD Checked by: initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



PB 824



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 048A (PB 825)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 1	



Photograph 1:

View of concrete pad at Tank 048A (PB 825) following demolition.



Photograph 2:

View of former Tank 048A (PB 825) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 048A)



PES Project Load Ticket

Load Ticket: 14121

5720103

Date: 12-02-21

Sold to: Allegiant Scrap
Location: 1700A PES
Carrier: Allegiant

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: _____

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 - D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 76720 lbs

Tare Weight: 46480 lbs

Net Weight: 30240 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPEMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20032436

Date: 12/02/2021 7:58 AM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 95098.946

Loads: 6233

DT1-56 - ALLEGHENY TRUCK 1 W/TRAILER 56

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	18.12 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	76720.00	40460.00	36260.00

14121

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 051A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

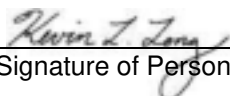
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.


Signature of Person Performing Site Assessment

09/ 26 /2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method ¹	Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
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						/ /	/ /
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						/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:
P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Page 10 of 12

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 051A (PB 833)

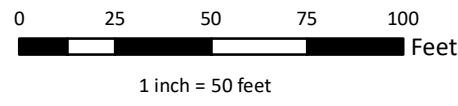
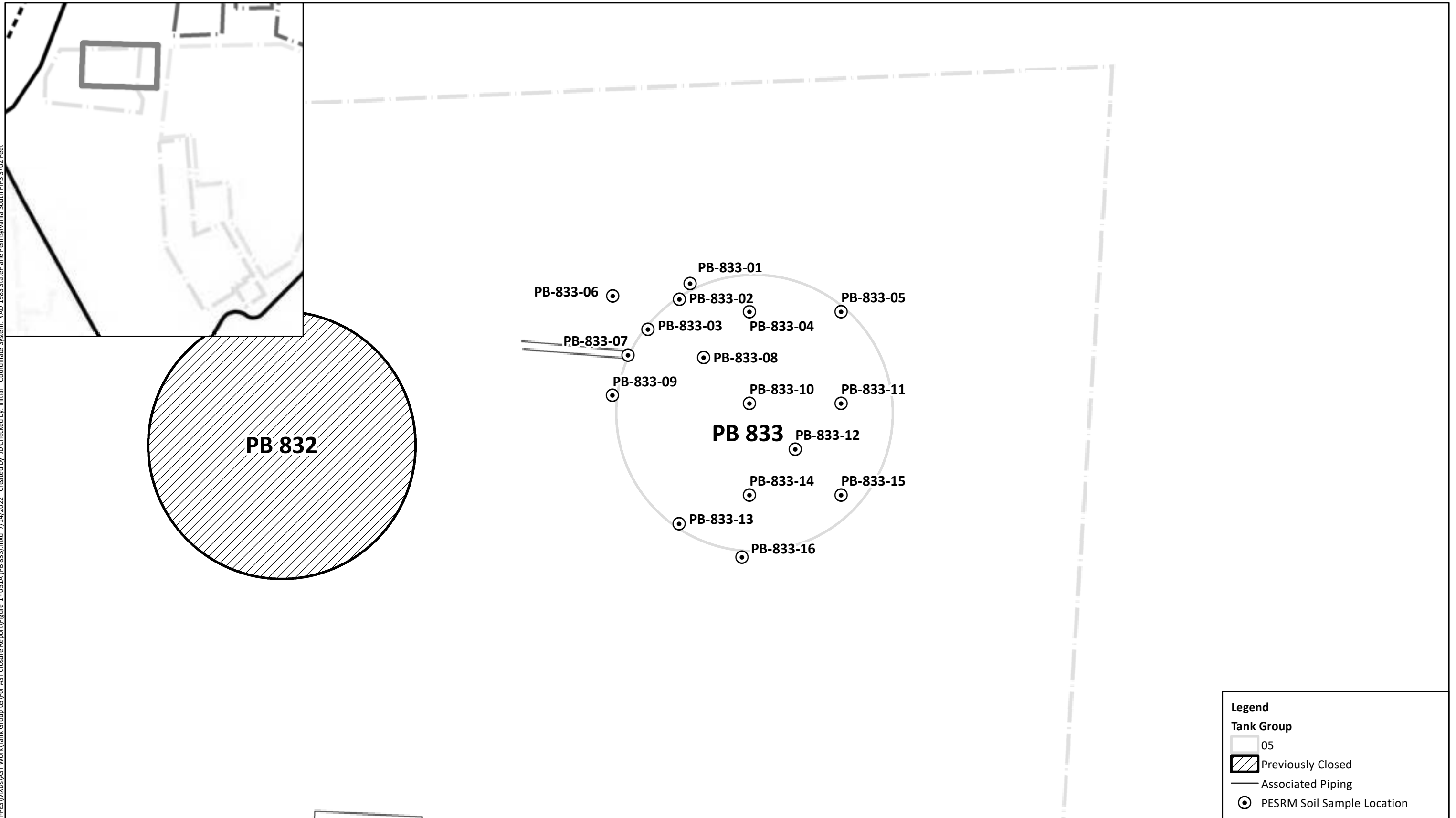
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-833-15	PB-833-15-SS01	4.5	5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Fluorene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00087	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-15	PB-833-15-SS01	4.5	5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Xylenes (total)	SW8260C	Soil	ND	0.0028	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Lead	SW6010D	Soil	123	2.13	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0028	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0007	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0014	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00044	0.0028	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Benzene	SW8260C	Soil	ND	0.0007	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Cumene	SW8260C	Soil	0.00026	0.0014	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.15	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Toluene	SW8260C	Soil	ND	0.0014	7/5/2022	7/9/2022
PB-833-16	PB-833-16-SS01	4	4.5	Pyrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Chrysene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Fluorene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Naphthalene	SW8270D	Soil	ND	0.18	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Phenanthrene	SW8270D	Soil	ND	0.11	7/5/2022	7/7/2022
PB-833-16	PB-833-16-SS01	4	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0028	7/5/2022	7/9/2022

Notes:

SS -- Soil Sample.

File: N:\GIS\Project\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_05\Fer_AST_Closure_Report\Figure 1_051A (PB 833).mxd 7/14/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 051A (PB 833)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

Legend
Tank Group
05
Previously Closed
Associated Piping
PESRM Soil Sample Location

Figure 1



Photograph 1:

View of Tank 051A (PB 833) prior to demolition.



Photograph 2:

View of Tank 051A (PB 833) during demolition.



Photograph 3:

View of former tank location following demolition.

Product Movement and Waste Disposal Documentation (Tank 051A)



PES Project Load Ticket

S120103

Load Ticket: 14270

Date: 12-07-21

Sold to: Allegany ^{Scrap}
Location: Tank #33
Carrier: Allegany

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

- Non-Ferrous
- Insulated Copper Wire
 - No. 1 Copper Wire
 - Brass
 - Aluminum
 - Stainless, Grade _____
 - Other Alloy, Grade _____
 - Mixed
 - Other: _____

- Condition
- Prepared
 - Unprepared
 - Green Waste
 - Concrete
 - Masonry
 - Mixed Masonry
 - Wood Only
 - Demo Debris (C&D)
 - Dirt / Fill
 - Sand Fill
 - Crushed Stone
 - Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste: (Flammable D001, corrosive D002, reactive D003, toxicity D004 - D0147)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 85040 lbs

Tare Weight: 38760 lbs

Net Weight: 46280 lbs

NorthStar Rep. Signature: CAF

Received By: [Signature]

HILCO REDEVELOPMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19146

Ticket #: 20032567

Date: 12/07/2021 7:33 AM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 97112.086

Loads: 6356

DT261-2 - ALLEGHENY TRUCK 261 W/TRAILER 2

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	23.14 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	85040.00	38760.00	46280.00



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 052A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 20 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

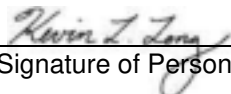
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

09/26 /2022

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Figure 1 - 052A (PB 836)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-836-12	PB-836-12-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00043	0.0026	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0011	0.0013	7/6/2022	7/7/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-12	PB-836-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00029	0.00065	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0079	0.0035	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	0.089	0.15	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0018	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0035	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.001	0.0018	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0014	0.0018	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0068	0.0035	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0016	0.00088	7/6/2022	7/7/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.13	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.082	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.1	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.074	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.19	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.086	0.12	7/6/2022	7/8/2022
PB-836-13	PB-836-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.048	0.15	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00016	0.0011	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00032	0.00056	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.0011	7/6/2022	7/7/2022
PB-836-14	PB-836-14-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Benzene	SW8260C	Soil	ND	0.00064	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Cumene	SW8260C	Soil	ND	0.0013	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	7/6/2022	7/7/2022
PB-836-15	PB-836-15-SS01	3	3.5	Pyrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Anthracene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Chrysene	SW8270D	Soil	ND	0.12	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Fluorene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Naphthalene	SW8270D	Soil	ND	0.2	7/6/2022	7/8/2022
PB-836-15	PB-836-15-SS01	3	3.5	Toluene	SW8260C	Soil	ND	0.0013	7/6/2022	7/7/2022

Notes:

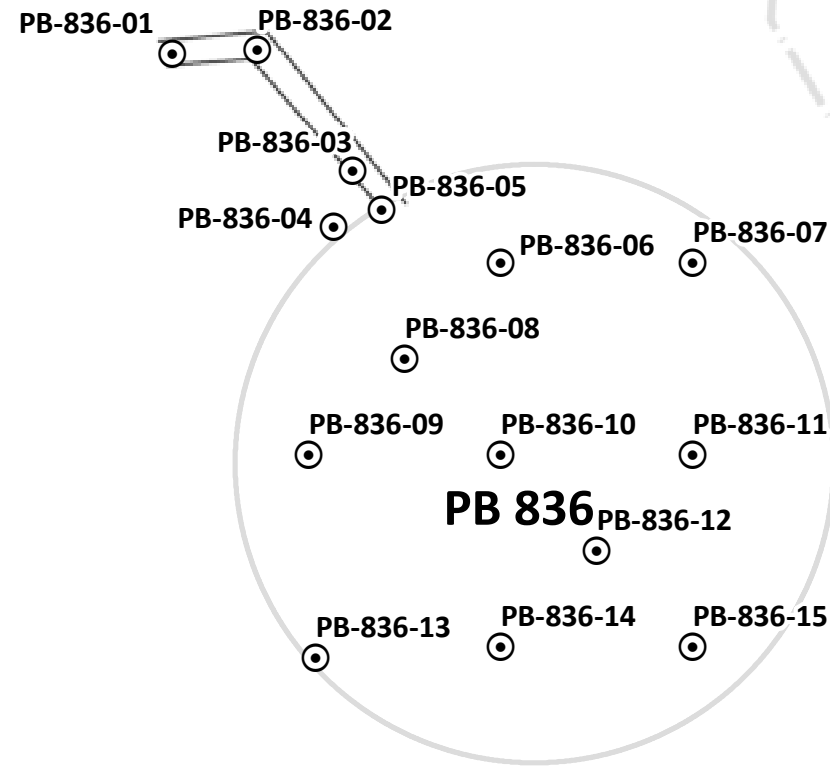
SS -- Soil Sample.




DUP-33 is a field duplicate associated with sample PB-836-04-SS01.

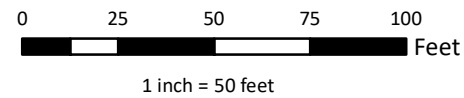
File: N:\GIS\Projects\044_001_PESRM-PES\MapDocs\AST\Work\Tank Group 05\For AST Closure Report\Figure 1_052A (PB 836).mxd 7/14/2022 Created by: JD Checked by: initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet




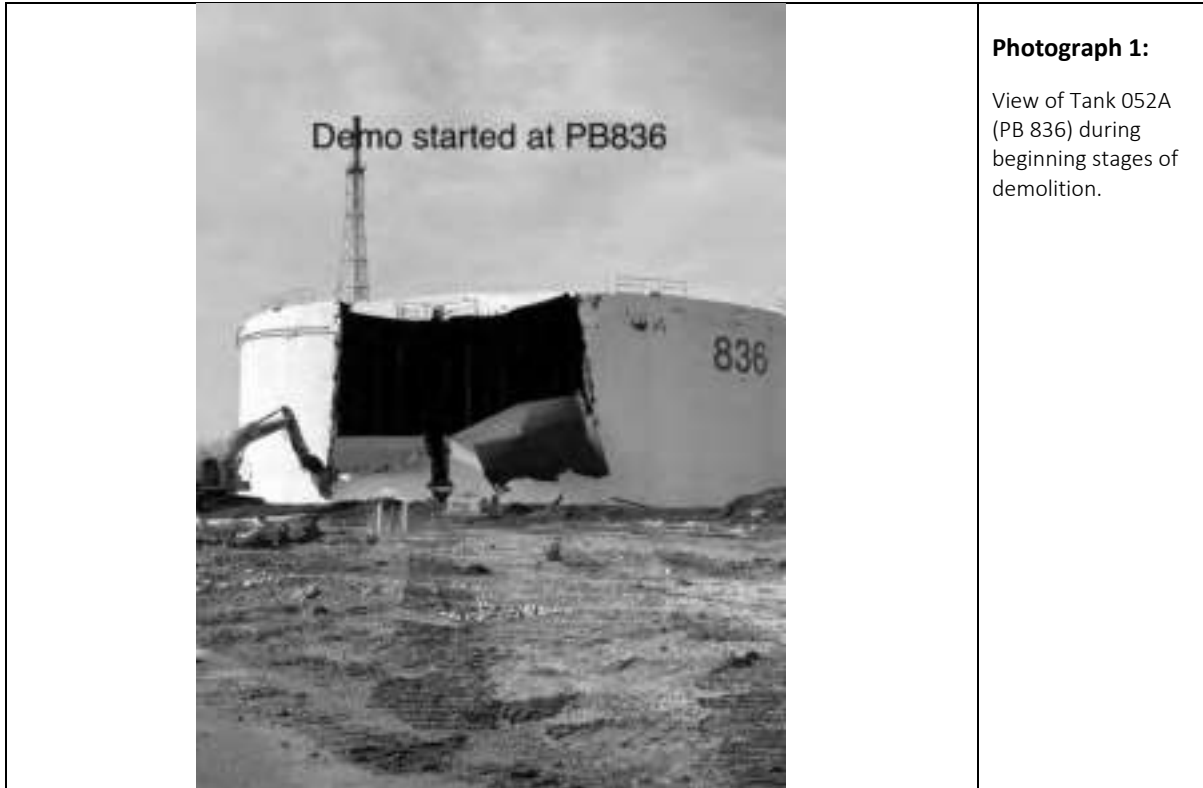
PB 835



Legend	
	05 Tank Group
	Associated Piping
	PESRM Soil Sample Location



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 052A (PB 836)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 1	



Photograph 1:
View of Tank 052A (PB 836) during beginning stages of demolition.



Photograph 2:
View of Tank 052A (PB 836) during demolition.

Continued
Loading trucks
at PB836

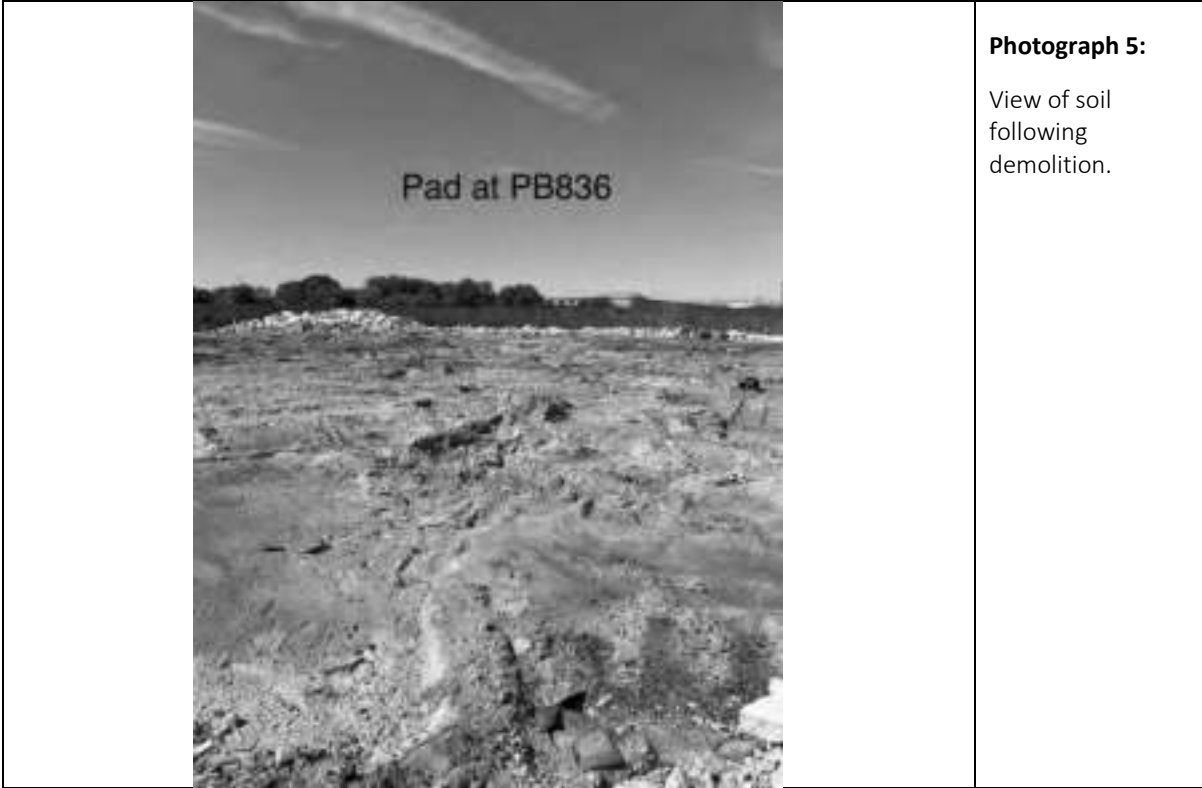


Photograph 3:
View of scrap pile.

Sizing plates 836



Photograph 4:
View of scrap pile.



Product Movement and Waste Disposal Documentation (Tank 052A)



PES Project Load Ticket

S120103

Load Ticket: 19143

Date: 03-18-22

Sold to: Allegheny Scrap
Location: Allegheny #2 Tank 636
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: _____

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade: _____
- Other Alloy, Grade: _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (Flammable D001, corrosive D002, reactive D003, toxicity D004 - D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 609740 lbs

Tare Weight: 42000 lbs

Net Weight: 27740 lbs

NorthStar Rep. Signature: CAF

Received By: Isa Onto

HILCO REDEVELOPEMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20035121

Date: 03/18/2022 7:47 AM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 136699.826

Loads: 8895

DTDS-103 - ALLEGHENY TRUCK 08 W/TRAILER 103

CARLAD - CARLA DAVILA

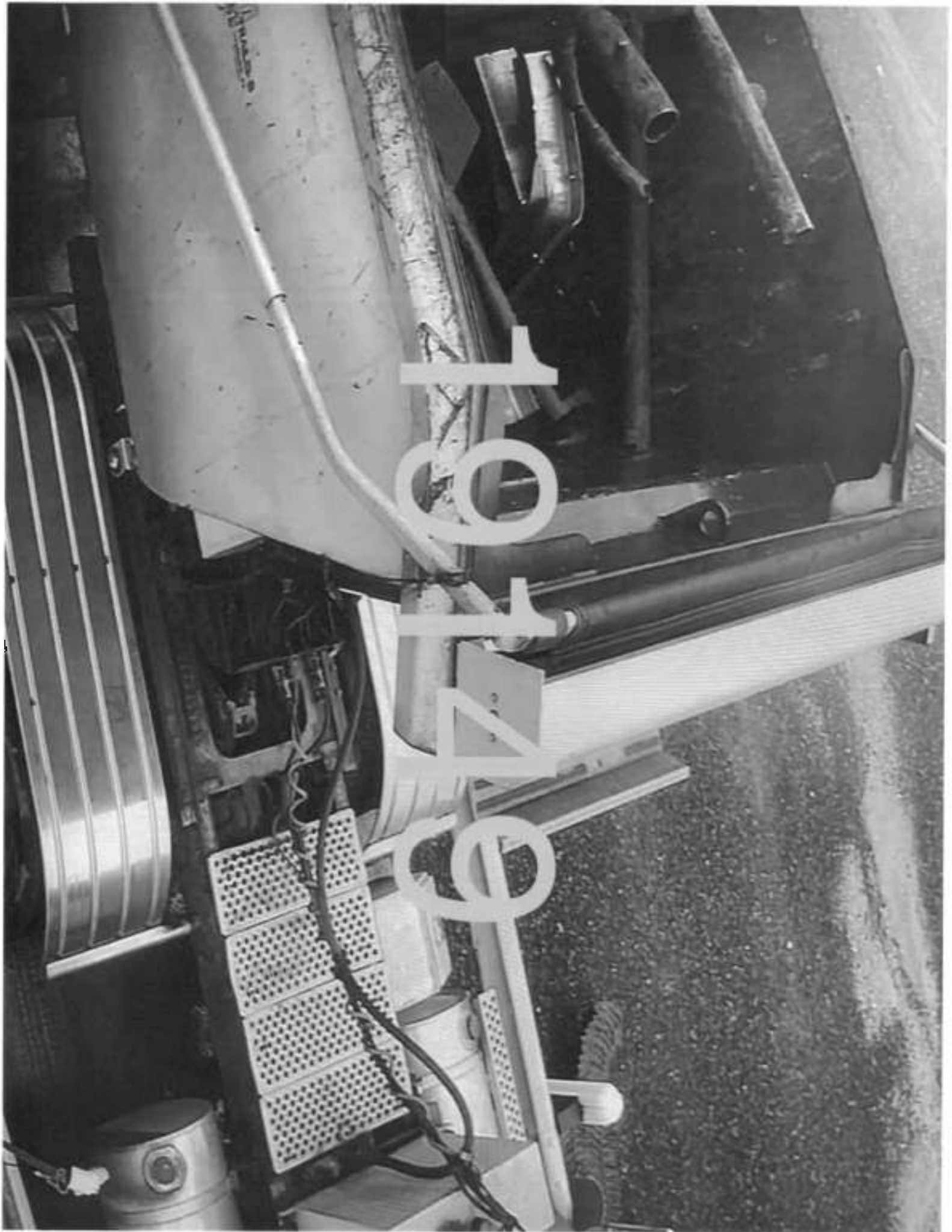
Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	13.87 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	69740.00	42000.00	27740.00



Product Movement and Waste Disposal Documentation (Tank Group 05)

Reg. #	Tank ID	BBL Transferred	Gal.	Transferred To	Product / Waste Disposition
045A	821	124	5,208	843	Oil Sale
046A	822	0	0	N/A	Temp. out of Service 9/27/2019
047A	823	194	8,148	843	Oil Sale
009A	824	210	8,820	843	Oil Sale
048A	825	0	0	N/A	Temp. out of Service 4/19/2019
050A	831	0	0	N/A	CIP 12/4/2008
051A	833	9,290	390,180	843	Oil Sale
104A	834	0	0	N/A	CIP 3/5/2007
010A	835	0	0	N/A	Facility Status at Turnover - Empty Out of Service 5/22/2020
052A	836	262	11,004	191	Oil Sale
042A	253	0	0	N/A	Facility Status at Time of Turnover - Empty Out of Service

*Note - None of these tanks required stabilization of tank bottoms, negating any material from Tankl Group 5 being shipped off site fo disposal

Laboratory Reports



ANALYTICAL REPORT

Lab Number:	L2167219
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	12/22/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167219-01	PB-885-22-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:10	12/07/21
L2167219-02	PB-885-23-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:30	12/07/21
L2167219-03	PB-885-26-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:45	12/07/21
L2167219-04	PB-885-21-SS01	SOIL	PHILADELPHIA, PA	12/07/21 10:10	12/07/21
L2167219-05	PB-885-06-SS01	SOIL	PHILADELPHIA, PA	12/07/21 10:40	12/07/21
L2167219-06	PB-253-01-SS01	SOIL	PHILADELPHIA, PA	12/07/21 12:30	12/07/21
L2167219-07	PB-253-02-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:00	12/07/21
L2167219-08	PB-253-03-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:10	12/07/21
L2167219-09	PB-253-04-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:40	12/07/21
L2167219-10	PB-253-05-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:00	12/07/21
L2167219-11	PB-253-06-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:10	12/07/21
L2167219-12	PB-253-07-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:20	12/07/21
L2167219-13	PB-253-08-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:30	12/07/21
L2167219-14	PB-253-09-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:40	12/07/21
L2167219-15	PB-253-10-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:50	12/07/21
L2167219-16	DUP-23	SOIL	PHILADELPHIA, PA	12/07/21 00:00	12/07/21
L2167219-17	FB-211207	WATER	PHILADELPHIA, PA	12/07/21 15:00	12/07/21
L2167219-18	TB-211207	WATER	PHILADELPHIA, PA	12/07/21 00:00	12/07/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2167219-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2167219-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (310%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-15 and -16: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2167219-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (158%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative (continued)

L2167219-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (139%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2167219-16D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2167219-16D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Semivolatile Organics by SIM

The WG1582162-1 Method Blank, associated with L2167219-17, has concentrations above the reporting limits for Naphthalene and Phenanthrene. Since the associated sample concentrations are either greater than 10x the blank concentrations or non-detect to the RL for these target analytes, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 12/22/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 07:49
 Analyst: MV
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 13:56
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03
 Client ID: PB-885-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:45
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 14:22
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 14:48
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05
 Client ID: PB-885-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 16:05
 Analyst: AJK
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-06
 Client ID: PB-253-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 12:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 13:07
 Analyst: MV
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00083	J	mg/kg	0.0023	0.00023	1
Benzene	0.84	E	mg/kg	0.00056	0.00019	1
Toluene	0.11		mg/kg	0.0011	0.00061	1
Ethylbenzene	1.1	E	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.086		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.93	E	mg/kg	0.0023	0.00038	1
Naphthalene	0.071		mg/kg	0.0045	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-06 D
 Client ID: PB-253-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 12:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:25
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	3.5		mg/kg	0.065	0.022	2
Toluene	0.70		mg/kg	0.13	0.071	2
Ethylbenzene	9.4		mg/kg	0.13	0.018	2
Isopropylbenzene	1.0		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	1.9		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	14.		mg/kg	0.26	0.043	2
Naphthalene	0.75		mg/kg	0.52	0.084	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 17:54
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.53		mg/kg	0.038	0.012	1
Toluene	0.53		mg/kg	0.075	0.041	1
Ethylbenzene	6.4		mg/kg	0.075	0.010	1
Isopropylbenzene	2.3		mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	12.		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	31.	E	mg/kg	0.15	0.025	1
Naphthalene	29.	E	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07 D
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:48
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	34.		mg/kg	1.5	0.25	10
Naphthalene	48.		mg/kg	3.0	0.49	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-08
 Client ID: PB-253-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 19:55
 Analyst: MKS
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00052	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.00034	J	mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	114		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-09
 Client ID: PB-253-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 20:17
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
Toluene	ND		mg/kg	0.00085	0.00046	1
Ethylbenzene	ND		mg/kg	0.00085	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00085	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1
Naphthalene	ND		mg/kg	0.0034	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-10
 Client ID: PB-253-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/21/21 15:10
 Analyst: KJD
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	0.0084		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.043		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.015		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.19		mg/kg	0.0023	0.00038	1
Naphthalene	0.019		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	310	Q	70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-11
 Client ID: PB-253-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 20:40
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	ND		mg/kg	0.0045	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-12
 Client ID: PB-253-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:20
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:03
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00047	J	mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	0.0020		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0014		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0023	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0015	J	mg/kg	0.0026	0.00043	1
Naphthalene	0.038		mg/kg	0.0051	0.00084	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-13
 Client ID: PB-253-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 18:17
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	ND		mg/kg	0.034	0.011	1
Toluene	ND		mg/kg	0.067	0.036	1
Ethylbenzene	0.12		mg/kg	0.067	0.0095	1
Isopropylbenzene	0.38		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.9		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	4.4		mg/kg	0.13	0.022	1
Naphthalene	1.9		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-14
 Client ID: PB-253-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 12:43
 Analyst: MV
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00075	1
Ethylbenzene	0.0014		mg/kg	0.0014	0.00019	1
Isopropylbenzene	0.015		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0052		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	0.010		mg/kg	0.0028	0.00046	1
Naphthalene	0.014		mg/kg	0.0055	0.00090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-15
 Client ID: PB-253-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:50
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 18:40
 Analyst: MV
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
Toluene	ND		mg/kg	0.065	0.035	1
Ethylbenzene	0.033	J	mg/kg	0.065	0.0092	1
Isopropylbenzene	2.4		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.13	0.022	1
Naphthalene	0.91		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	158	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 19:02
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	ND		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	ND		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.016	J	mg/kg	0.067	0.0095	1
p/m-Xylene	ND		mg/kg	0.13	0.038	1
o-Xylene	0.036	J	mg/kg	0.067	0.020	1
Xylenes, Total	0.036	J	mg/kg	0.067	0.020	1
Isopropylbenzene	2.0		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.054	J	mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/19/21 14:11
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 09:57
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-18
 Client ID: TB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/19/21 14:20
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-18
 Client ID: TB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 11:57
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/17/21 09:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17 Batch: WG1584911-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/17/21 06:57
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04 Batch: WG1585060-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/19/21 11:13
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17-18 Batch: WG1585167-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-07 Batch: WG1585263-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-09,11-12 Batch: WG1585264-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 09:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,13,15-16 Batch: WG1585981-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/19/21 11:53
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1586009-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 09:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,14 Batch: WG1586011-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/21/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1586225-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/22/21 08:29
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 18 Batch: WG1586758-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	112		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17 Batch: WG1584911-3 WG1584911-4								
Methyl tert butyl ether	93		98		63-130	5		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	99		100		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		99		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04 Batch: WG1585060-3 WG1585060-4								
Methyl tert butyl ether	78		93		66-130	18		30
Benzene	101		93		70-130	8		30
1,2-Dichloroethane	85		83		70-130	2		30
Toluene	103		94		70-130	9		30
1,2-Dibromoethane	89		86		70-130	3		30
Ethylbenzene	108		97		70-130	11		30
p/m-Xylene	110		99		70-130	11		30
o-Xylene	108		99		70-130	9		30
Isopropylbenzene	106		95		70-130	11		30
1,3,5-Trimethylbenzene	106		95		70-130	11		30
1,2,4-Trimethylbenzene	105		96		70-130	9		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	106		103		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	95		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17-18 Batch: WG1585167-2									
1,2-Dibromoethane	106		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-07 Batch: WG1585263-3 WG1585263-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-09,11-12 Batch: WG1585264-3 WG1585264-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,13,15-16 Batch: WG1585981-3 WG1585981-4								
Methyl tert butyl ether	96		102		66-130	6		30
Benzene	86		92		70-130	7		30
1,2-Dichloroethane	95		104		70-130	9		30
Toluene	84		88		70-130	5		30
1,2-Dibromoethane	96		99		70-130	3		30
Ethylbenzene	87		92		70-130	6		30
p/m-Xylene	89		95		70-130	7		30
o-Xylene	91		99		70-130	8		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	86		86		70-130	0		30
1,2,4-Trimethylbenzene	86		86		70-130	0		30
Naphthalene	82		84		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		110		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	103		98		70-130
Dibromofluoromethane	104		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1586009-3 WG1586009-4								
Methyl tert butyl ether	103		103		66-130	0		30
Benzene	106		104		70-130	2		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	105		103		70-130	2		30
1,2-Dibromoethane	99		100		70-130	1		30
Ethylbenzene	108		106		70-130	2		30
p/m-Xylene	116		113		70-130	3		30
o-Xylene	114		112		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	113		110		70-130	3		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,14 Batch: WG1586011-3 WG1586011-4								
Methyl tert butyl ether	106		106		66-130	0		30
Benzene	110		108		70-130	2		30
Toluene	108		108		70-130	0		30
Ethylbenzene	111		111		70-130	0		30
Isopropylbenzene	114		111		70-130	3		30
1,3,5-Trimethylbenzene	115		113		70-130	2		30
1,2,4-Trimethylbenzene	116		114		70-130	2		30
Naphthalene	101		106		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		99		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	102		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1586225-3 WG1586225-4								
Methyl tert butyl ether	105		106		66-130	1		30
Benzene	106		105		70-130	1		30
Toluene	104		105		70-130	1		30
Ethylbenzene	107		108		70-130	1		30
Isopropylbenzene	110		110		70-130	0		30
1,3,5-Trimethylbenzene	110		112		70-130	2		30
1,2,4-Trimethylbenzene	111		112		70-130	1		30
Naphthalene	108		111		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	100		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 18 Batch: WG1586758-3 WG1586758-4								
Methyl tert butyl ether	90		100		63-130	11		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		110		70-130	10		20
Ethylbenzene	100		110		70-130	10		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		105		70-130	5		20
Isopropylbenzene	100		110		70-130	10		20
1,3,5-Trimethylbenzene	94		98		64-130	4		20
1,2,4-Trimethylbenzene	95		99		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		111		70-130
Toluene-d8	105		105		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 02:17
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	41		23-120
2-Fluorobiphenyl	37		30-120
4-Terphenyl-d14	37		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 02:41
 Analyst: JG
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03
 Client ID: PB-885-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:45
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:05
 Analyst: JG
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:29
 Analyst: JG
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05
 Client ID: PB-885-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:54
 Analyst: JG
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16 D
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 21:49
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	4.0	0.49	20
Fluorene	14.		mg/kg	4.0	0.39	20
Phenanthrene	29.		mg/kg	2.4	0.49	20
Anthracene	3.7		mg/kg	2.4	0.78	20
Pyrene	2.9		mg/kg	2.4	0.40	20
Benzo(a)anthracene	ND		mg/kg	2.4	0.45	20
Chrysene	ND		mg/kg	2.4	0.42	20
Benzo(b)fluoranthene	ND		mg/kg	2.4	0.68	20
Benzo(a)pyrene	ND		mg/kg	3.2	0.98	20
Benzo(ghi)perylene	ND		mg/kg	3.2	0.47	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	0	Q	23-120
2-Fluorobiphenyl	0	Q	30-120
4-Terphenyl-d14	0	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/14/21 13:31
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/12/21 07:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	67		15-120
4-Terphenyl-d14	68		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/14/21 17:24
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 12/11/21 21:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 17 Batch: WG1582162-1					
Naphthalene	0.12		ug/l	0.10	0.05
Fluorene	0.01	J	ug/l	0.10	0.01
Phenanthrene	0.10		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	72		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 12/19/21 23:25
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 12/18/21 08:16

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05,16 Batch: WG1584941-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	69		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 17 Batch: WG1582162-2 WG1582162-3								
Naphthalene	78		87		40-140	11		40
Fluorene	93		95		40-140	2		40
Phenanthrene	91		92		40-140	1		40
Anthracene	96		97		40-140	1		40
Pyrene	105		104		26-127	1		40
Benzo(a)anthracene	99		97		40-140	2		40
Chrysene	92		92		40-140	0		40
Benzo(b)fluoranthene	109		109		40-140	0		40
Benzo(a)pyrene	105		103		40-140	2		40
Benzo(ghi)perylene	90		88		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	68		77		23-120
2-Fluorobiphenyl	88		97		15-120
4-Terphenyl-d14	114		112		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05,16 Batch: WG1584941-2 WG1584941-3								
Naphthalene	60		75		40-140	22		50
Fluorene	62		74		40-140	18		50
Phenanthrene	60		71		40-140	17		50
Anthracene	59		73		40-140	21		50
Pyrene	61		73		35-142	18		50
Benzo(a)anthracene	64		76		40-140	17		50
Chrysene	64		76		40-140	17		50
Benzo(b)fluoranthene	67		79		40-140	16		50
Benzo(a)pyrene	63		71		40-140	12		50
Benzo(ghi)perylene	68		83		40-140	20		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	61		74		23-120
2-Fluorobiphenyl	63		76		30-120
4-Terphenyl-d14	63		75		18-120

METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.76		mg/kg	4.73	0.254	2	12/17/21 19:37	12/22/21 13:59	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02

Date Collected: 12/07/21 09:30

Client ID: PB-885-23-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.80		mg/kg	2.08	0.111	1	12/17/21 19:37	12/21/21 22:55	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03

Date Collected: 12/07/21 09:45

Client ID: PB-885-26-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.28		mg/kg	2.05	0.110	1	12/17/21 19:37	12/21/21 23:00	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04

Date Collected: 12/07/21 10:10

Client ID: PB-885-21-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.11		mg/kg	2.06	0.110	1	12/17/21 19:37	12/21/21 23:05	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05

Date Collected: 12/07/21 10:40

Client ID: PB-885-06-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.41		mg/kg	2.07	0.111	1	12/17/21 19:37	12/21/21 23:10	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.69		mg/kg	2.29	0.123	1	12/17/21 19:37	12/21/21 23:34	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17

Date Collected: 12/07/21 15:00

Client ID: FB-211207

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:28	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17 Batch: WG1582832-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/14/21 05:12	12/16/21 23:54	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05,16 Batch: WG1584723-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/17/21 19:37	12/21/21 20:33	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17 Batch: WG1582832-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 Batch: WG1584723-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17 QC Batch ID: WG1582832-3 WG1582832-4 QC Sample: L2167147-05 Client ID: MS Sample												
Lead, Total	1.973	530	492.8	93		482.8	91		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 QC Batch ID: WG1584723-3 QC Sample: L2167070-01 Client ID: MS Sample												
Lead, Total	10.2	48	49.6	82		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 QC Batch ID: WG1584723-4 QC Sample: L2167070-01 Client ID: DUP Sample						
Lead, Total	10.2	10.3	mg/kg	1		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-01

Date Collected: 12/07/21 09:10

Client ID: PB-885-22-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-03

Date Collected: 12/07/21 09:45

Client ID: PB-885-26-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.8		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-05

Date Collected: 12/07/21 10:40

Client ID: PB-885-06-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-06

Date Collected: 12/07/21 12:30

Client ID: PB-253-01-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-08
 Client ID: PB-253-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-09

Date Collected: 12/07/21 13:40

Client ID: PB-253-04-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-10

Date Collected: 12/07/21 14:00

Client ID: PB-253-05-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-11
 Client ID: PB-253-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-12
 Client ID: PB-253-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:20
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.9		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-13

Date Collected: 12/07/21 14:30

Client ID: PB-253-08-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-14
 Client ID: PB-253-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-15

Date Collected: 12/07/21 14:50

Client ID: PB-253-10-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16 QC Batch ID: WG1580638-1 QC Sample: L2167219-01 Client ID: PB-885-22-SS01						
Solids, Total	80.0	79.4	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-01B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-01C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-01F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-02B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-02C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-02F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-03B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-03C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-03D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-03F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-04B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-04C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-04D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Serial_No:12222117:04
Lab Number: L2167219
Report Date: 12/22/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-04F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-05B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-05C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-05D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-05F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-06A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2167219-06B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260H(14),PA-8260HLW(14)
L2167219-06C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260H(14),PA-8260HLW(14)
L2167219-06D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-07A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-07B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-07C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-07D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-08A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-08B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-08C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-08D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-09A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-09B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-09C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-09D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-10A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-10B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-10C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-10D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-11A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-11B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-11C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-11D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-12A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-12B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-12C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-12D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-13A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-13B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-13C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-13D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-14A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-14B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-14C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-14D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-15A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-15B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-15C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-15D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-16A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-16B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-16C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-16D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167219-16F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167219-17A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-17B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Serial_No:12222117:04
Lab Number: L2167219
Report Date: 12/22/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-17C	Vial HCl preserved	A	NA		2.3	Y	Absent		8011(14)
L2167219-17D	Plastic 500ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		PB-6020T-PPB(180)
L2167219-17E	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2167219-17F	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2167219-17G	Plastic 60ml unpreserved	A	NA		2.3	Y	Absent		ARCHIVE()
L2167219-18A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-18B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-18C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)
L2167219-18D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Data Qualifiers

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.


EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2



Westborough, MA
TEL: 508-898-9220
FAX: 508-898-4100

Mansfield, MA
TEL: 508-822-5300
FAX: 508-822-3299

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13181

Turn-Around Time
 Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 12/8/21

ALPHA Job #: L2167219

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Report Information

FAX EMAIL

ADEX Add'l Deliverables

Billing Information

Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist	SAMPLE HANDLING Filteration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # SHORTLIST
67219-01	PB-885-22-SS01	12/7	0910	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-02	PB-885-23-SS01		0930	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-03	PB-885-26-SS01		0945	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-04	PB-885-21-SS01		1010	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-05	PB-885-06-SS01		1040	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-06	PB-253-01-SS01		1230	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-07	PB-253-02-SS01		1300	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-08	PB-253-03-SS01		1310	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-09	PB-253-04-SS01		1340	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-10	PB-253-05-SS01		1400	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	Container Type	Preservative
		Date	Time				
						G	F
						G	A
						G	A
						-	-
						-	-
						-	-
						-	-
						-	-
						-	-


Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/7 11:50	<i>[Signature]</i>	12/7 12:25
<i>[Signature]</i>	12/7 17:50	<i>[Signature]</i>	12/7 17:50
<i>[Signature]</i>	12/7/21	<i>[Signature]</i>	12/7/21
<i>[Signature]</i>	12/8/21	<i>[Signature]</i>	12/8/21 20:50
<i>[Signature]</i>	12/8/21	<i>[Signature]</i>	12/8/21 09:00
<i>[Signature]</i>	12/8/21 09:00	<i>[Signature]</i>	12/8/21 09:00

FORM C-1-10-04 Rev. 1-24-05

Please print clearly, legibly and completely. Samples cannot be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 of 2



Westborough, MA
TEL: 508-498-8220
FAX: 508-498-6193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3228

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 12/8/21

ALPHA Job #: L216.7219

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: [] Standard [] Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

[] These samples have been previously analyzed by Alpha

Report Information: Data Deliverables

FAX EMAIL

ADEX Add'l Deliverables

Billing Information

Same as Client Info PO #: 3694

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hbcoglobal.com

Regulatory Requirements/Report Limits

State/Fed Program: [] Criteria: []

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

Sample ID

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS											Remarks	
		Date	Time			PADEP Shortlist 1-5	PADEP Shortlist 1 & 2	PADEP Shortlist 4	PADEP Shortlist 3-5	PADEP Shortlist 5	PADEP Shortlist 6	pH	Benzene	Cumene	Tetraethylene Glycol	VOC		
G2169-11	PB-253-06-5501	12/7	1410	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-12	PB-253-07-5501		1420	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-13	PB-253-08-5501		1430	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-14	PB-253-09-5501		1440	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-15	PB-253-10-5501		1450	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-16	DUP-23		-	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-17	PB-211207		1500	W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-18	TB-211207		-	W	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: [Signature]

Date/Time: 12/7/21 17:36

12/7/21 17:50

12/7/21

12/8/21

Received By: [Signature]

Date/Time: 12/7/21 16:25

12/7/21 17:50

12/7/21 20:30

12/8/21 01:50

12/8/21 noon

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical List:

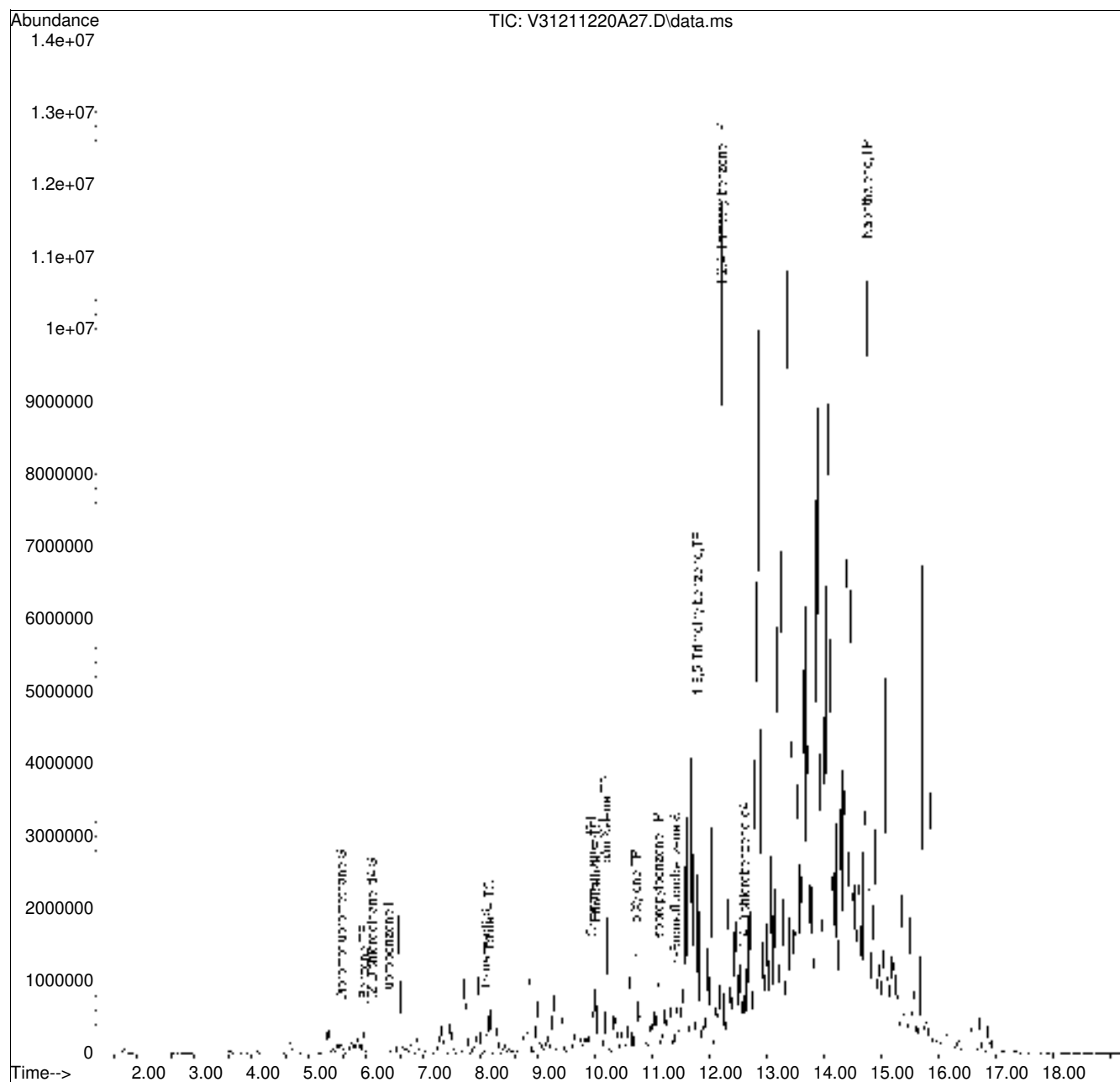
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
6. Waste Oil - benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
 Data File : V31211220A27.D
 Acq On : 20 Dec 2021 05:54 pm
 Operator : VOA131:MV
 Sample : 12167219-07,31H,4.64,5,0.100,,a
 Misc : WG1585981,ICAL18518
 ALS Vial : 27 Sample Multiplier: 1

Quant Time: Dec 21 05:07:47 2021
 Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri Dec 03 10:30:02 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

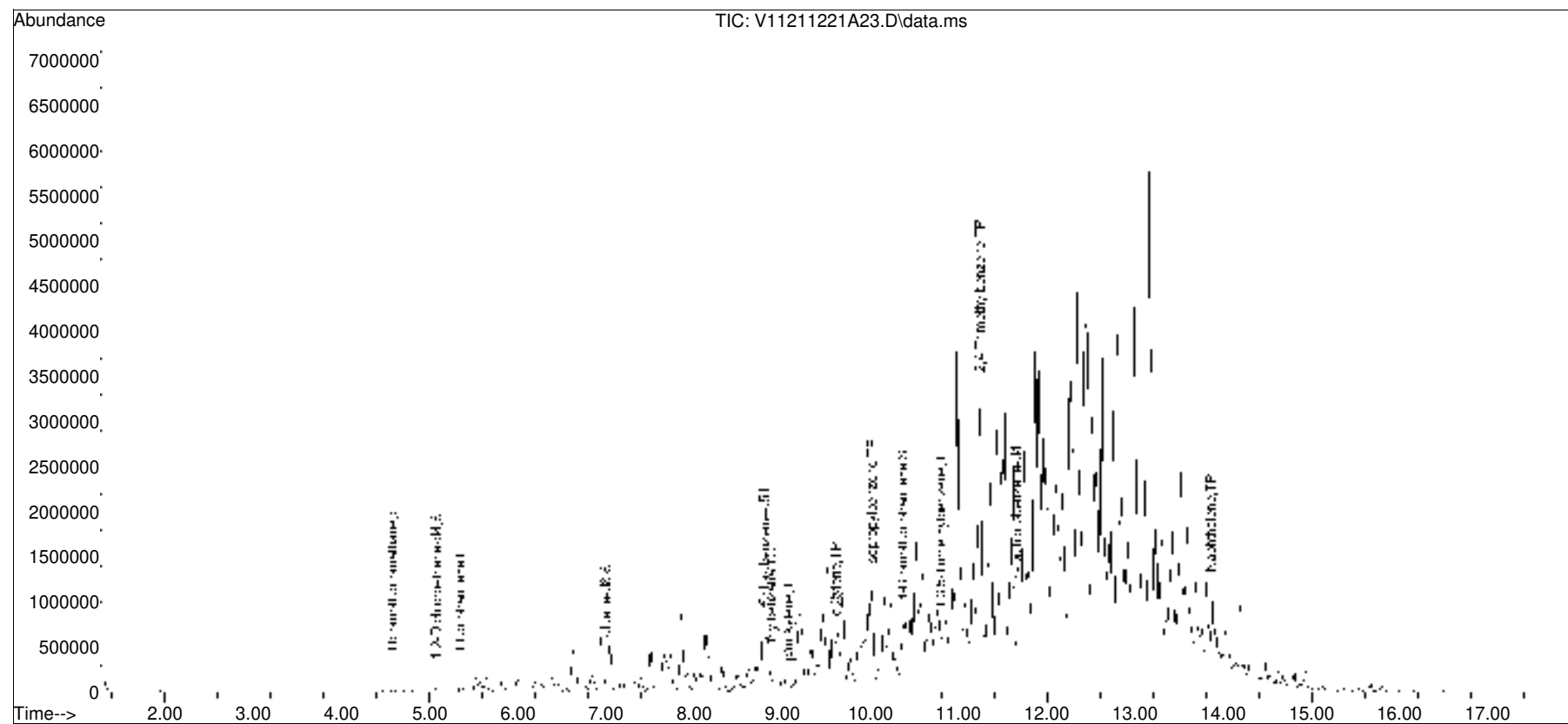


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\211221A\
Data File : V11211221A23.D
Acq On : 21 Dec 2021 03:10 pm
Operator : VOA111:KJD
Sample : L2167219-10,31,5.51,5,,B
Misc : WG1586225,ICAL18566
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 21 15:37:17 2021
Quant Method : I:\VOLATILES\VOA111\2021\211221A\V111_211214A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 12:27:59 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V11211221A01.D•

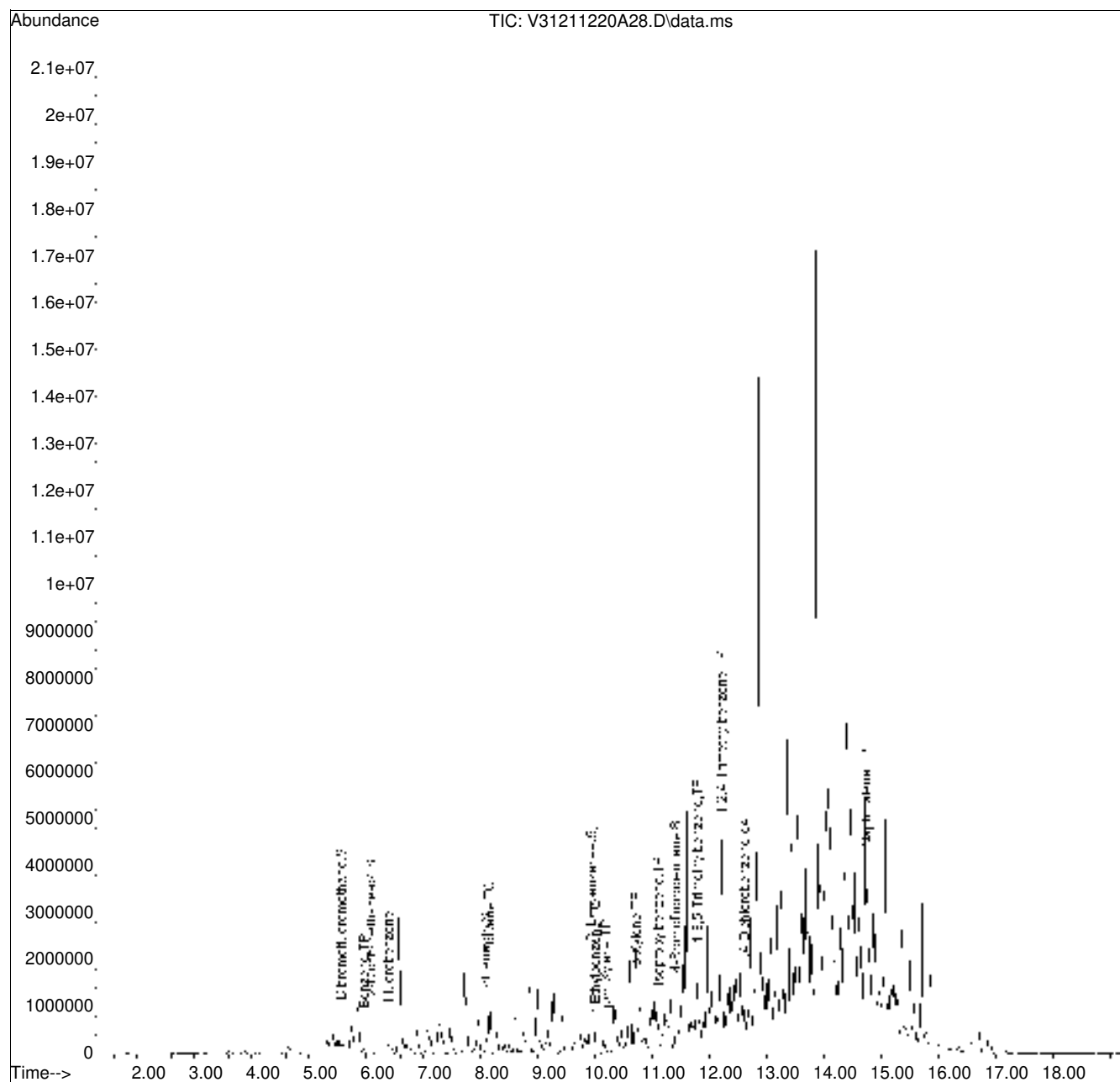


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
Data File : V31211220A28.D
Acq On : 20 Dec 2021 06:17 pm
Operator : VOA131:MV
Sample : 12167219-13,31H,5.33,5,0.100,,a
Misc : WG1585981,ICAL18518
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 21 05:07:51 2021
Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Dec 03 10:30:02 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

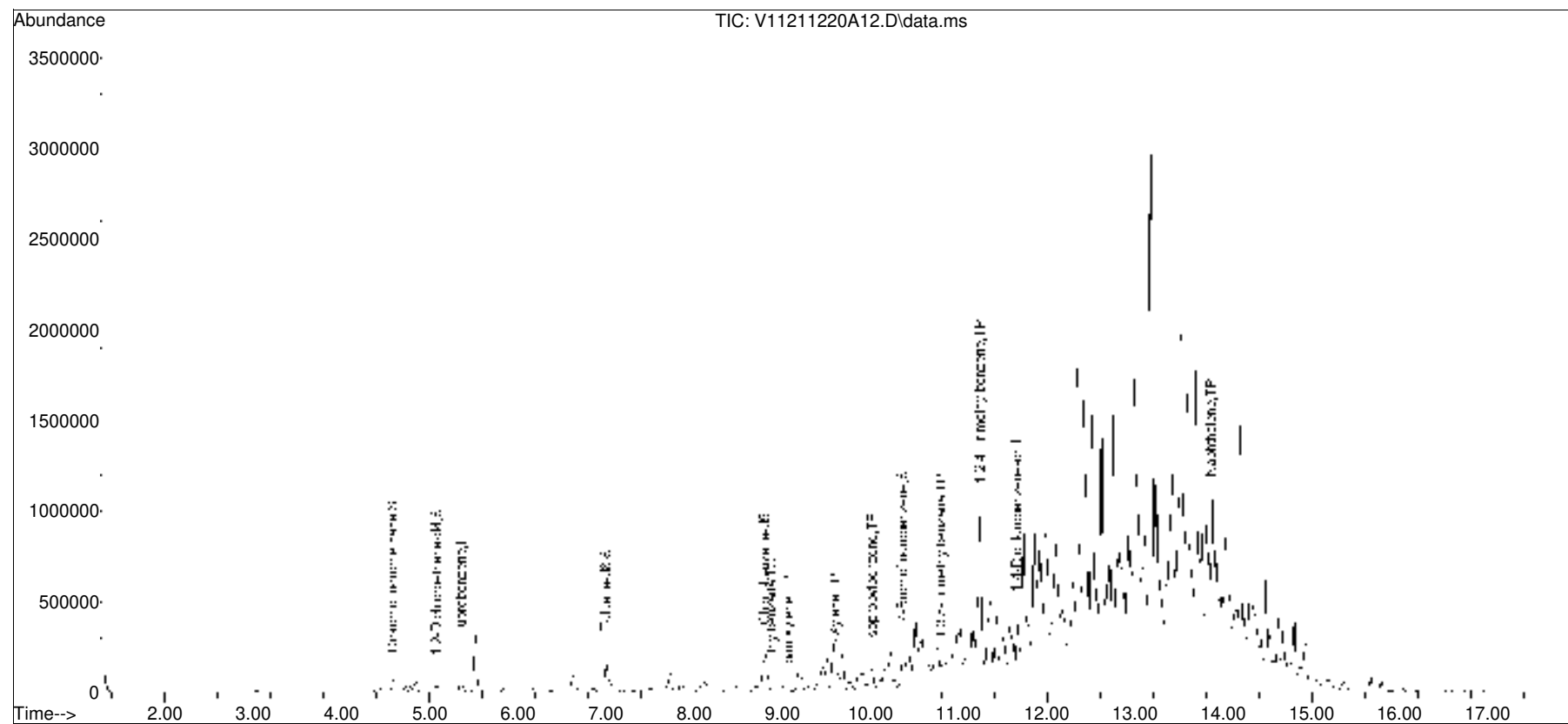


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\211220A\
Data File : V11211220A12.D
Acq On : 20 Dec 2021 12:43 pm
Operator : VOA111:MV
Sample : L2167219-14,31,4.21,5,,B
Misc : WG1586011,ICAL18566
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 21 08:40:26 2021
Quant Method : I:\VOLATILES\VOA111\2021\211220A\V111_211214A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 12:27:59 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V11211220A01.D•

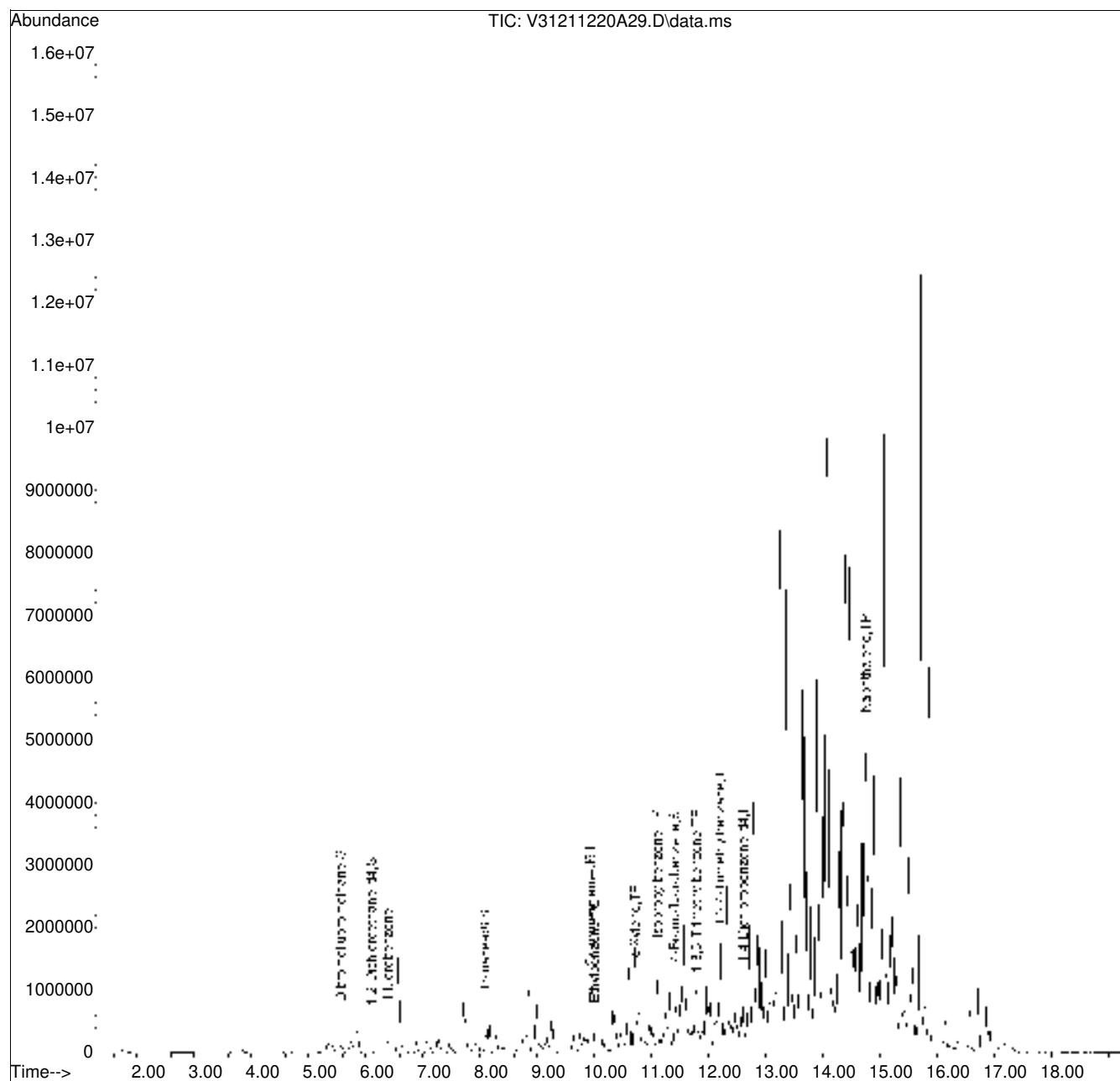


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
Data File : V31211220A29.D
Acq On : 20 Dec 2021 06:40 pm
Operator : VOA131:MV
Sample : 12167219-15,31H,5.71,5,0.100,,a
Misc : WG1585981,ICAL18518
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 21 06:01:53 2021
Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Dec 03 10:30:02 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

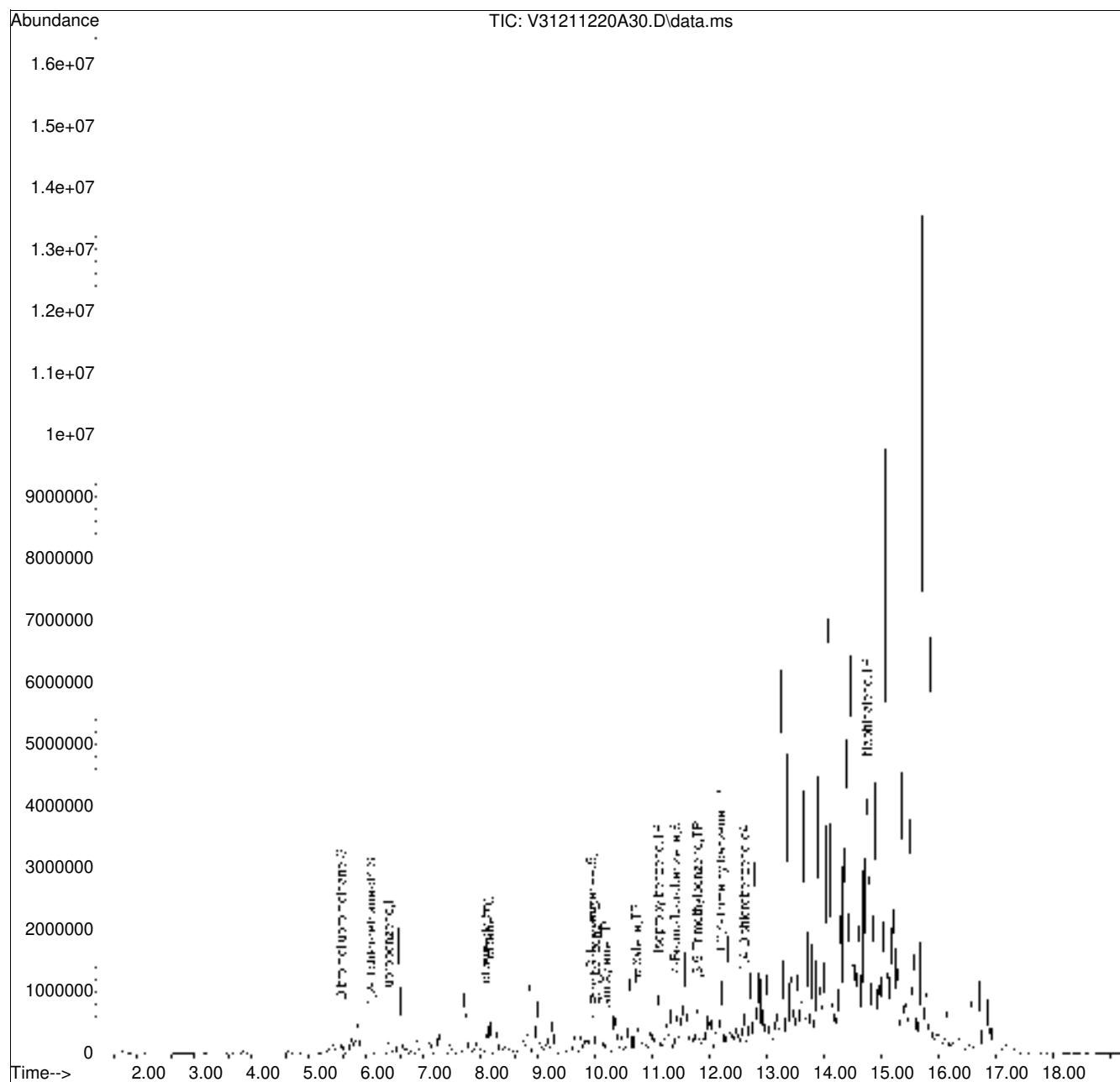


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
 Data File : V31211220A30.D
 Acq On : 20 Dec 2021 07:02 pm
 Operator : VOA131:MV
 Sample : 12167219-16,31H,5.32,5,0.100,,a
 Misc : WG1585981,ICAL18518
 ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 21 06:02:25 2021
 Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri Dec 03 10:30:02 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•





ANALYTICAL REPORT

Lab Number:	L2167531
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	12/27/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167531-01	PB-253-11-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:10	12/08/21
L2167531-02	PB-253-12-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:20	12/08/21
L2167531-03	PB-253-13-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:35	12/08/21
L2167531-04	PB-253-14-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:50	12/08/21
L2167531-05	PB-253-15-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:00	12/08/21
L2167531-06	PB-253-16-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:15	12/08/21
L2167531-07	PB-253-17-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:30	12/08/21
L2167531-08	PB-883-08-SS01	SOIL	PHILADELPHIA, PA	12/08/21 11:35	12/08/21
L2167531-09	PB-883-09-SS01	SOIL	PHILADELPHIA, PA	12/08/21 11:55	12/08/21
L2167531-10	PB-883-10-SS01	SOIL	PHILADELPHIA, PA	12/08/21 12:15	12/08/21
L2167531-11	PB-883-11-SS01	SOIL	PHILADELPHIA, PA	12/08/21 12:45	12/08/21
L2167531-12	PB-883-12-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:00	12/08/21
L2167531-13	PB-883-13-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:10	12/08/21
L2167531-14	PB-883-14-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:20	12/08/21
L2167531-15	PB-883-16-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:25	12/08/21
L2167531-16	PB-883-17-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:40	12/08/21
L2167531-17	PB-883-18-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:50	12/08/21
L2167531-18	PB-883-19-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:00	12/08/21
L2167531-19	PB-883-22-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:05	12/08/21
L2167531-20	PB-883-23-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:15	12/08/21
L2167531-21	PB-883-24-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:30	12/08/21
L2167531-22	FB-211208-1	WATER	PHILADELPHIA, PA	12/08/21 14:40	12/08/21
L2167531-23	FB-211208-2	WATER	PHILADELPHIA, PA	12/08/21 14:45	12/08/21
L2167531-24	DUP-24	SOIL	PHILADELPHIA, PA	12/08/21 00:00	12/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167531-25	TB-211208	WATER	PHILADELPHIA, PA	12/08/21 00:00	12/08/21



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2167531-17: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (185%) and 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2167531-15D, -16D and -17D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Semivolatile Organics by SIM

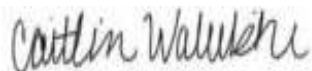
L2167531-23: The Field Blank has a concentration above the reporting limit for Naphthalene and Phenanthrene. The sample was re-extracted with the method required holding time exceeded and was non-detect for this target compound. The results of both extractions are reported.

Total Metals

The WG1585605-3 MS recovery, performed on L2167531-08, is outside the acceptance criteria for lead (63%). A post digestion spike was performed and yielded an unacceptable recovery for lead (62%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 12/27/21

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-01
 Client ID: PB-253-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 02:19
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00089	0.00048	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-02
 Client ID: PB-253-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 00:49
 Analyst: MKS
 Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-03
 Client ID: PB-253-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:11
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1
Naphthalene	ND		mg/kg	0.0058	0.00094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	111		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-04
 Client ID: PB-253-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:34
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-05
 Client ID: PB-253-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:57
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-06
 Client ID: PB-253-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 06:53
 Analyst: AJK
 Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-07
 Client ID: PB-253-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:14
 Analyst: AJK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00074	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00046	1
Naphthalene	ND		mg/kg	0.0055	0.00089	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-08
 Client ID: PB-883-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:34
 Analyst: AJK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09
 Client ID: PB-883-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:55
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:55
 Analyst: AJK
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10
 Client ID: PB-883-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:16
 Analyst: AJK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	ND		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00089	0.00026	1
Xylenes, Total	ND		mg/kg	0.00089	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:36
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12
 Client ID: PB-883-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:57
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00034	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13
 Client ID: PB-883-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:18
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14
 Client ID: PB-883-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 13:26
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0025	0.00069	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15
 Client ID: PB-883-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:25
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:38
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.00019	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 22:10
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17
 Client ID: PB-883-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 08:04
 Analyst: MV
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	ND		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
p/m-Xylene	ND		mg/kg	0.13	0.036	1
o-Xylene	0.044	J	mg/kg	0.064	0.019	1
Xylenes, Total	0.044	J	mg/kg	0.064	0.019	1
Isopropylbenzene	0.82		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.040	J	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	185	Q	70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18
 Client ID: PB-883-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 11:42
 Analyst: MV
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19
 Client ID: PB-883-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:05
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 10:20
 Analyst: AJK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00024	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20
 Client ID: PB-883-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 10:40
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00074	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00044	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00083	1
o-Xylene	ND		mg/kg	0.0015	0.00043	1
Xylenes, Total	ND		mg/kg	0.0015	0.00043	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 11:01
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:24
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:21
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:32
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:41
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-24
 Client ID: DUP-24
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 11:22
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	ND		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-25
 Client ID: TB-211208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:41
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-25
 Client ID: TB-211208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 12:22
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-05 Batch: WG1585264-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 10:40
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18 Batch: WG1585532-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/20/21 14:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 22-23,25 Batch: WG1585549-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/19/21 06:32
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06-15,19-21,24 Batch: WG1585594-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/19/21 08:42
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22-23 Batch: WG1585679-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 19:34
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1586528-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/22/21 07:39
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17 Batch: WG1586695-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/22/21 08:23
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25 Batch: WG1586738-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-05 Batch: WG1585264-3 WG1585264-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18 Batch: WG1585532-3 WG1585532-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	98		97		70-130	1		30
1,2-Dichloroethane	88		91		70-130	3		30
Toluene	100		100		70-130	0		30
1,2-Dibromoethane	93		102		70-130	9		30
Ethylbenzene	101		100		70-130	1		30
p/m-Xylene	105		104		70-130	1		30
o-Xylene	105		104		70-130	1		30
Isopropylbenzene	106		101		70-130	5		30
1,3,5-Trimethylbenzene	109		103		70-130	6		30
1,2,4-Trimethylbenzene	107		103		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 22-23,25 Batch: WG1585549-2									
1,2-Dibromoethane	98		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06-15,19-21,24 Batch: WG1585594-3 WG1585594-4								
Methyl tert butyl ether	92		106		66-130	14		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	92		99		70-130	7		30
Toluene	103		105		70-130	2		30
1,2-Dibromoethane	96		109		70-130	13		30
Ethylbenzene	106		107		70-130	1		30
p/m-Xylene	110		110		70-130	0		30
o-Xylene	111		113		70-130	2		30
Isopropylbenzene	115		108		70-130	6		30
1,3,5-Trimethylbenzene	118		109		70-130	8		30
1,2,4-Trimethylbenzene	116		109		70-130	6		30
Naphthalene	98		105		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	88		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22-23 Batch: WG1585679-3 WG1585679-4								
Methyl tert butyl ether	83		89		63-130	7		20
Benzene	96		100		70-130	4		20
1,2-Dichloroethane	88		88		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		110		70-130	10		20
p/m-Xylene	105		110		70-130	5		20
o-Xylene	100		105		70-130	5		20
Isopropylbenzene	99		110		70-130	11		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	96		100		70-130	4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	97		100		70-130
Dibromofluoromethane	95		94		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1586528-3 WG1586528-4								
Methyl tert butyl ether	93		92		66-130	1		30
Benzene	100		99		70-130	1		30
1,2-Dichloroethane	79		79		70-130	0		30
Toluene	102		101		70-130	1		30
1,2-Dibromoethane	87		88		70-130	1		30
Ethylbenzene	104		103		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	105		102		70-130	3		30
Isopropylbenzene	104		99		70-130	5		30
1,3,5-Trimethylbenzene	101		102		70-130	1		30
1,2,4-Trimethylbenzene	100		101		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	94		95		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17 Batch: WG1586695-3 WG1586695-4								
Methyl tert butyl ether	94		96		66-130	2		30
Benzene	89		93		70-130	4		30
1,2-Dichloroethane	90		95		70-130	5		30
Toluene	91		95		70-130	4		30
1,2-Dibromoethane	99		104		70-130	5		30
Ethylbenzene	92		96		70-130	4		30
p/m-Xylene	94		99		70-130	5		30
o-Xylene	93		98		70-130	5		30
Isopropylbenzene	94		96		70-130	2		30
1,3,5-Trimethylbenzene	93		97		70-130	4		30
1,2,4-Trimethylbenzene	93		96		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	98		96		70-130
Dibromofluoromethane	98		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25 Batch: WG1586738-3 WG1586738-4								
Methyl tert butyl ether	82		86		63-130	5		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	93		96		70-130	3		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	110		100		64-130	10		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		100		70-130
Toluene-d8	98		95		70-130
4-Bromofluorobenzene	104		100		70-130
Dibromofluoromethane	97		96		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-08
 Client ID: PB-883-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 00:35
 Analyst: EK
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09
 Client ID: PB-883-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:55
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 00:58
 Analyst: EK
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	96		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10
 Client ID: PB-883-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 01:21
 Analyst: EK
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	91		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 01:44
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12
 Client ID: PB-883-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 05:35
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	0.028	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.021	J	mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13
 Client ID: PB-883-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 05:58
 Analyst: EK
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14
 Client ID: PB-883-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 06:21
 Analyst: EK
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.025	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	91		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15 D
 Client ID: PB-883-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:25
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/22/21 12:00
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.99	0.12	5
Fluorene	ND		mg/kg	0.99	0.096	5
Phenanthrene	ND		mg/kg	0.59	0.12	5
Anthracene	ND		mg/kg	0.59	0.19	5
Pyrene	0.36	J	mg/kg	0.59	0.098	5
Benzo(a)anthracene	ND		mg/kg	0.59	0.11	5
Chrysene	0.43	J	mg/kg	0.59	0.10	5
Benzo(b)fluoranthene	ND		mg/kg	0.59	0.17	5
Benzo(a)pyrene	ND		mg/kg	0.79	0.24	5
Benzo(ghi)perylene	ND		mg/kg	0.79	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16 D
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 15:11
 Analyst: CMM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.90	0.11	5
Fluorene	0.29	J	mg/kg	0.90	0.087	5
Phenanthrene	0.43	J	mg/kg	0.54	0.11	5
Anthracene	ND		mg/kg	0.54	0.18	5
Pyrene	0.20	J	mg/kg	0.54	0.089	5
Benzo(a)anthracene	0.13	J	mg/kg	0.54	0.10	5
Chrysene	0.36	J	mg/kg	0.54	0.094	5
Benzo(b)fluoranthene	ND		mg/kg	0.54	0.15	5
Benzo(a)pyrene	ND		mg/kg	0.72	0.22	5
Benzo(ghi)perylene	ND		mg/kg	0.72	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17 D
 Client ID: PB-883-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 15:35
 Analyst: CMM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.91	0.11	5
Fluorene	0.25	J	mg/kg	0.91	0.088	5
Phenanthrene	0.52	J	mg/kg	0.54	0.11	5
Anthracene	ND		mg/kg	0.54	0.18	5
Pyrene	0.19	J	mg/kg	0.54	0.090	5
Benzo(a)anthracene	ND		mg/kg	0.54	0.10	5
Chrysene	0.37	J	mg/kg	0.54	0.094	5
Benzo(b)fluoranthene	ND		mg/kg	0.54	0.15	5
Benzo(a)pyrene	ND		mg/kg	0.72	0.22	5
Benzo(ghi)perylene	ND		mg/kg	0.72	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	66		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18
 Client ID: PB-883-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 13:36
 Analyst: SLR
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	0.027	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	112		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	80		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19
 Client ID: PB-883-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:05
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:08
 Analyst: EK
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20
 Client ID: PB-883-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:31
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:55
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/18/21 17:35
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.09	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	74		15-120
4-Terphenyl-d14	86		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/18/21 18:37
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.1		ug/l	0.10	0.05	1
Fluorene	0.02	J	ug/l	0.10	0.01	1
Phenanthrene	0.13		ug/l	0.05	0.02	1
Anthracene	0.03	J	ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	75		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23 RE
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/26/21 14:09
 Analyst: DV

Extraction Method: EPA 3510C
 Extraction Date: 12/23/21 18:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	88		15-120
4-Terphenyl-d14	101		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/18/21 17:14
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 22-23 Batch: WG1582804-1					
Naphthalene	0.06	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	0.01	J	ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	79		15-120
4-Terphenyl-d14	90		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/19/21 22:15
Analyst: EK

Extraction Method: EPA 3546
Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 08-21 Batch: WG1585095-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.097	0.020
Anthracene	ND		mg/kg	0.097	0.032
Pyrene	ND		mg/kg	0.097	0.016
Benzo(a)anthracene	ND		mg/kg	0.097	0.018
Chrysene	ND		mg/kg	0.097	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.097	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.039
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	100		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/26/21 13:50
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/23/21 15:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23 Batch: WG1587278-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	74		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 22-23 Batch: WG1582804-2 WG1582804-3								
Naphthalene	81		77		40-140	5		40
Fluorene	86		84		40-140	2		40
Phenanthrene	79		78		40-140	1		40
Anthracene	89		87		40-140	2		40
Pyrene	90		89		26-127	1		40
Benzo(a)anthracene	81		80		40-140	1		40
Chrysene	91		92		40-140	1		40
Benzo(b)fluoranthene	81		83		40-140	2		40
Benzo(a)pyrene	91		89		40-140	2		40
Benzo(ghi)perylene	82		80		40-140	2		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	81		82		23-120
2-Fluorobiphenyl	90		84		15-120
4-Terphenyl-d14	95		94		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 08-21 Batch: WG1585095-2 WG1585095-3								
Naphthalene	75		88		40-140	16		50
Fluorene	83		99		40-140	18		50
Phenanthrene	81		95		40-140	16		50
Anthracene	82		96		40-140	16		50
Pyrene	82		97		35-142	17		50
Benzo(a)anthracene	86		103		40-140	18		50
Chrysene	82		98		40-140	18		50
Benzo(b)fluoranthene	84		106		40-140	23		50
Benzo(a)pyrene	81		98		40-140	19		50
Benzo(ghi)perylene	91		109		40-140	18		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	73		84		23-120
2-Fluorobiphenyl	83		98		30-120
4-Terphenyl-d14	89		104		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23 Batch: WG1587278-2 WG1587278-3								
Naphthalene	56		65		40-140	15		40
Fluorene	62		71		40-140	14		40
Phenanthrene	60		73		40-140	20		40
Anthracene	64		73		40-140	13		40
Pyrene	65		88		26-127	30		40
Benzo(a)anthracene	62		81		40-140	27		40
Chrysene	61		82		40-140	29		40
Benzo(b)fluoranthene	69		96		40-140	33		40
Benzo(a)pyrene	67		91		40-140	30		40
Benzo(ghi)perylene	57		76		40-140	29		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	55		63		23-120
2-Fluorobiphenyl	63		70		15-120
4-Terphenyl-d14	68		78		41-149

METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-08

Date Collected: 12/08/21 11:35

Client ID: PB-883-08-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.8		mg/kg	2.48	0.133	1	12/20/21 23:32	12/22/21 00:53	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09

Date Collected: 12/08/21 11:55

Client ID: PB-883-09-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.18		mg/kg	2.03	0.109	1	12/20/21 23:32	12/22/21 00:34	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10

Date Collected: 12/08/21 12:15

Client ID: PB-883-10-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.67		mg/kg	2.14	0.114	1	12/20/21 23:32	12/22/21 00:39	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.25		mg/kg	2.32	0.124	1	12/20/21 23:32	12/22/21 00:44	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12

Date Collected: 12/08/21 13:00

Client ID: PB-883-12-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.0		mg/kg	2.27	0.122	1	12/20/21 23:32	12/22/21 00:48	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13

Date Collected: 12/08/21 13:10

Client ID: PB-883-13-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.72		mg/kg	2.44	0.130	1	12/20/21 23:32	12/22/21 01:25	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14

Date Collected: 12/08/21 13:20

Client ID: PB-883-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.14		mg/kg	2.35	0.126	1	12/20/21 23:32	12/22/21 01:30	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15

Date Collected: 12/08/21 13:25

Client ID: PB-883-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.62		mg/kg	2.28	0.122	1	12/20/21 23:32	12/22/21 01:35	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16

Date Collected: 12/08/21 13:40

Client ID: PB-883-17-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.06		mg/kg	4.20	0.225	2	12/20/21 23:32	12/22/21 11:19	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17

Date Collected: 12/08/21 13:50

Client ID: PB-883-18-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.49		mg/kg	4.24	0.227	2	12/20/21 23:32	12/22/21 11:24	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18

Date Collected: 12/08/21 14:00

Client ID: PB-883-19-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.75		mg/kg	4.24	0.228	2	12/20/21 23:32	12/22/21 11:29	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19

Date Collected: 12/08/21 14:05

Client ID: PB-883-22-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.03		mg/kg	2.25	0.121	1	12/20/21 23:32	12/22/21 01:54	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20

Date Collected: 12/08/21 14:15

Client ID: PB-883-23-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.64		mg/kg	2.26	0.121	1	12/20/21 23:32	12/22/21 01:58	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21

Date Collected: 12/08/21 14:30

Client ID: PB-883-24-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.46		mg/kg	2.27	0.122	1	12/20/21 23:32	12/22/21 02:03	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22

Date Collected: 12/08/21 14:40

Client ID: FB-211208-1

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:53	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23

Date Collected: 12/08/21 14:45

Client ID: FB-211208-2

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:57	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 22-23 Batch: WG1582832-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/14/21 05:12	12/16/21 23:54	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 08-21 Batch: WG1585605-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/20/21 23:32	12/22/21 00:16	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 Batch: WG1582832-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 08-21 Batch: WG1585605-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 QC Batch ID: WG1582832-3 WG1582832-4 QC Sample: L2167147-05 Client ID: MS Sample												
Lead, Total	1.973	530	492.8	93		482.8	91		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 08-21 QC Batch ID: WG1585605-3 QC Sample: L2167531-08 Client ID: PB-883-08-SS01												
Lead, Total	12.8	51	44.9	63	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 08-21 QC Batch ID: WG1585605-4 QC Sample: L2167531-08 Client ID: PB-883-08-SS01						
Lead, Total	12.8	10.9	mg/kg	16		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-01

Date Collected: 12/08/21 09:10

Client ID: PB-253-11-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-02
 Client ID: PB-253-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.5		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-03
 Client ID: PB-253-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-04

Date Collected: 12/08/21 09:50

Client ID: PB-253-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-05

Date Collected: 12/08/21 10:00

Client ID: PB-253-15-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-06

Date Collected: 12/08/21 10:15

Client ID: PB-253-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-07

Date Collected: 12/08/21 10:30

Client ID: PB-253-17-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-08

Date Collected: 12/08/21 11:35

Client ID: PB-883-08-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-09

Date Collected: 12/08/21 11:55

Client ID: PB-883-09-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.6		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-10

Date Collected: 12/08/21 12:15

Client ID: PB-883-10-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-11

Date Collected: 12/08/21 12:45

Client ID: PB-883-11-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-12

Date Collected: 12/08/21 13:00

Client ID: PB-883-12-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-13

Date Collected: 12/08/21 13:10

Client ID: PB-883-13-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-14

Date Collected: 12/08/21 13:20

Client ID: PB-883-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-15

Date Collected: 12/08/21 13:25

Client ID: PB-883-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-17

Date Collected: 12/08/21 13:50

Client ID: PB-883-18-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-18

Date Collected: 12/08/21 14:00

Client ID: PB-883-19-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.1		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-19

Date Collected: 12/08/21 14:05

Client ID: PB-883-22-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-20

Date Collected: 12/08/21 14:15

Client ID: PB-883-23-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-24

Date Collected: 12/08/21 00:00

Client ID: DUP-24

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-18 QC Batch ID: WG1581531-1 QC Sample: L2167531-01 Client ID: PB-253-11-SS01						
Solids, Total	86.9	85.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 19-21,24 QC Batch ID: WG1581534-1 QC Sample: L2167542-04 Client ID: DUP Sample						
Solids, Total	89.6	90.1	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-01A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-01B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-01C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-01D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-02A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-02B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-02C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-02D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-03A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-03B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-03C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-03D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-04A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-04B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-04C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-04D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-05A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-05B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-05C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-05D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-06A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-06B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-06C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-06D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-07A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-07B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-07C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-07D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-08A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-08B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-08C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-08D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-08F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-09A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-09B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-09C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-09D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-09E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-09F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-10A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-10B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-10C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-10D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-10E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-10F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-11A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-11B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-11C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-11D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-11F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-12A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-12B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-12C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-12D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-12F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-13A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-13B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-13C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-13D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-13F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-14A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-14B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-14C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-14D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-14E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-14F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-15A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-15B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-15C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-15D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-15F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-16A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-16B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-16C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-16D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-16E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-16F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-17A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-17B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-17C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-17D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-17E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-17F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-18A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-18B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-18C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-18D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-18F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-19A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-19B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-19C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-19D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-19E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-19F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-20A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-20B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-20C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-20D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-20E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-20F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-21A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-21B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-21C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-21D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-21F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-22A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-22B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-22C	Vial HCl preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-22D	Plastic 250ml HNO3 preserved	A	<2	<2	2.2	Y	Absent		PB-6020T-PPB(180)
L2167531-22E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-22F	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-23A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-23B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-23C	Vial HCl preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-23D	Plastic 250ml HNO3 preserved	A	<2	<2	2.2	Y	Absent		PB-6020T-PPB(180)
L2167531-23E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-23F	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-24A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-24B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-24C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-24D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-25A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-25B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-25C	Vial Na2S2O3 preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-25D	Vial Na2S2O3 preserved	A	NA		2.2	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Serial_No:12272116:29

Lab Number: L2167531

Report Date: 12/27/21

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Data Qualifiers

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.


EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L2167531

CHAIN OF CUSTODY PAGE 1 of 3



Westborough, MA Mansfield, MA
 TEL: 508-898-8220 TEL: 508-422-8300
 FAX: 508-898-8100 FAX: 508-422-3200

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13181

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531 GC

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4874

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Report Information, Data Deliverables, Billing Information

FAX EMAIL

ADEx Add'l Deliverables

Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)


ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS											Sample Specific Comments	TOTAL BOTTLES	
		Date	Time			PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist			
67531-01	PB-253-11-5501	12/8	0910	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-02	PB-253-12-5501		0920	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-03	PB-253-13-5501		0935	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-04	PB-253-14-5501		0950	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-05	PB-253-15-5501		1000	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-06	PB-253-16-5501		1015	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-07	PB-253-17-5501		1030	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-08	PB-883-08-5501		1135	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-09	PB-883-09-5501		1155	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-10	PB-883-10-5501		1215	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6

Container Type	G	G	G	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8/21 1533	<i>[Signature]</i>	12/8/21 1500
<i>[Signature]</i>	12/8/21 1730	<i>[Signature]</i>	12-8-21 1730
<i>[Signature]</i>	12-8-21 2050	<i>[Signature]</i>	12/8/21 2000
<i>[Signature]</i>	12/9/21	<i>[Signature]</i>	12/9/21 1315
<i>[Signature]</i>	12/9/21 0520	<i>[Signature]</i>	12/9/21 0520

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY PAGE 2 OF 3



Westborough, MA
TEL: 508-898-9220
FAX: 508-898-0193

Mansfield, MA
TEL: 508-422-5300
FAX: 508-472-1703

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Report Information: Data Deliverables

FAX EMAIL

ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3894

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Mat'ls	Sampler's Initials
		Date	Time		
67551-11	PB-883-11-5501	12/8	1245	S	TS
-12	PB-883-12-5501		1300	S	TS
-13	PB-883-13-5501		1310	S	TS
-14	PB-883-14-5501		1320	S	TS
-15	PB-883-15-5501		1325	S	TS
-16	PB-883-16-5501		1340	S	TS
-17	PB-883-17-5501		1350	S	TS
-18	PB-883-18-5501		1400	S	TS
-19	PB-883-19-5501		1405	S	TS
-20	PB-883-20-5501		1415	S	TS

Container Type	G	G	G	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: 12/8/21 1553

[Signature] Date/Time: 12/8/21 1730

[Signature] Date/Time: 12/8/21 2030

[Signature] Date/Time: 12/9/21 0512

Received By: *[Signature]* Date/Time: 12/8/21 15:30

[Signature] Date/Time: 12/8/21 17:00

[Signature] Date/Time: 12/8/21 21:00


[Signature] Date/Time: 12/9/21 0515

[Signature] Date/Time: 12/9/21 0520

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA
TEL: 508-856-9220
FAX: 508-858-8100

Mansfield, MA
TEL: 508-832-9000
FAX: 508-832-3238

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Regulatory Requirements/Report Limits

State/Fed Program: _____

Criteria: _____

Billing Information

FAX EMAIL

ADEx Add'l Deliverables

Same as Client info PO #: 3894

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (0-5)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jgray@hico.global.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials											Sample Specific Comments	TOTAL				
		Date	Time																		
67531-21	PB-893-24-5501	12/8	1430	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6	
-22	FB-211208-1	}	1440	W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-23	FB-211208-2		1445	W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-24	DUP-2A		-	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-25	FB-211208		-	W	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Container Type	G	B	O	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Requisitioned By: _____

Date/Time: 12/9/21 1533

Received By: _____

Date/Time: 12/9/21 1535

Requisitioned By: _____

Date/Time: 12/9/21 1535

Received By: _____

Date/Time: 12/9/21 1535

Requisitioned By: _____

Date/Time: 12/9/21 1535

Received By: _____

Date/Time: 12/9/21 1535

Requisitioned By: _____

Date/Time: 12/9/21 1535

Received By: _____

Date/Time: 12/9/21 1535

PADEP Short List Analytical List:

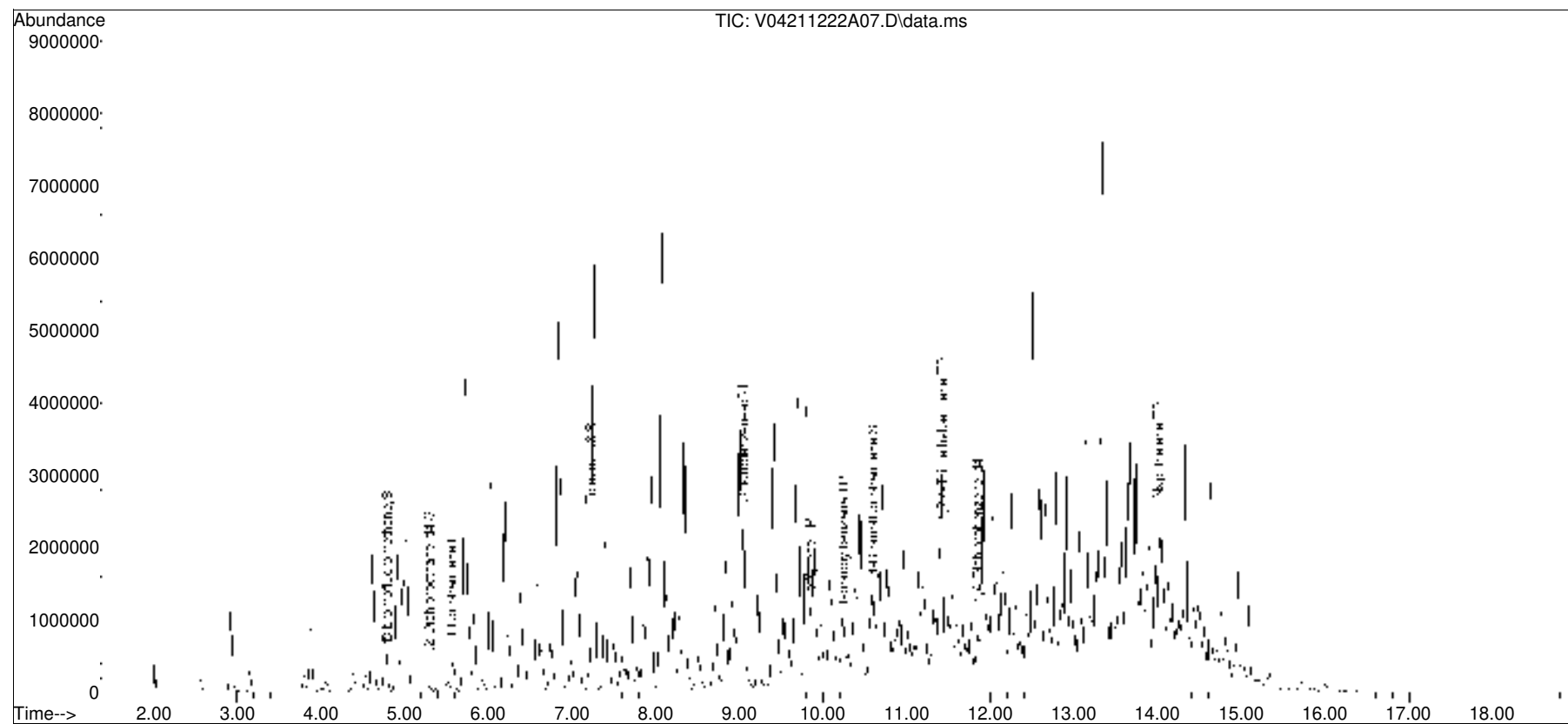
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211222A\
Data File : V04211222A07.D
Acq On : 22 Dec 2021 8:04 am
Operator : VOA104:MV
Sample : L2167531-17,31H,4.66,5,0.100,,A
Misc : WG1586695,18128ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 22 12:12:01 2021
Quant Method : I:\VOLATILES\VOA104\2021\211222A\V104_211214A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V04211222A01.D•





ANALYTICAL REPORT

Lab Number:	L2235694
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/11/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235694-01	PB-821-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:00	07/05/22
L2235694-02	PB-821-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:10	07/05/22
L2235694-03	PB-821-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:20	07/05/22
L2235694-04	PB-821-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:30	07/05/22
L2235694-05	PB-821-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:40	07/05/22
L2235694-06	PB-821-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:50	07/05/22
L2235694-07	PB-821-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:00	07/05/22
L2235694-08	PB-821-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:10	07/05/22
L2235694-09	PB-821-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:20	07/05/22
L2235694-10	PB-821-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:30	07/05/22
L2235694-11	PB-821-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:40	07/05/22
L2235694-12	PB-821-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:50	07/05/22
L2235694-13	PB-822-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:00	07/05/22
L2235694-14	PB-822-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:10	07/05/22
L2235694-15	PB-822-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:20	07/05/22
L2235694-16	PB-822-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:30	07/05/22
L2235694-17	PB-822-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:40	07/05/22
L2235694-18	PB-822-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:50	07/05/22
L2235694-19	PB-822-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:00	07/05/22
L2235694-20	PB-822-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:10	07/05/22
L2235694-21	PB-822-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:20	07/05/22
L2235694-22	PB-822-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:30	07/05/22
L2235694-23	PB-822-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:40	07/05/22
L2235694-24	PB-822-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:50	07/05/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235694-25	PB-822-13-SS01	SOIL	PHILADELPHIA, PA	07/05/22 14:00	07/05/22
L2235694-26	FB-070522-1	WATER	PHILADELPHIA, PA	07/05/22 14:30	07/05/22
L2235694-27	FB-070522-2	WATER	PHILADELPHIA, PA	07/05/22 14:35	07/05/22
L2235694-28	FB-070522-3	WATER	PHILADELPHIA, PA	07/05/22 14:40	07/05/22
L2235694-29	DUP-32	SOIL	PHILADELPHIA, PA	07/05/22 00:00	07/05/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative (continued)

Report Revision

July 11, 2022: The Volatile Organics WG1660349-3/-4 LCS/LCSD has been included.

Report Submission

July 08, 2022: This final report includes the results of all requested analyses.

July 07, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235694-29: The Client ID was specified by the client.

Volatile Organics

L2235694-17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235694-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (177%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235694-23: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235694-25: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative (continued)

The WG1659351-3 MS recovery, performed on L2235694-01, is outside the acceptance criteria for lead (68%). A post digestion spike was performed and yielded an unacceptable recovery for lead (70%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1659355-3 MS recovery, performed on L2235694-21, is outside the acceptance criteria for lead (60%). A post digestion spike was performed and yielded an unacceptable recovery for lead (65%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/11/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:20
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00039	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00078	0.00020	1
Toluene	ND		mg/kg	0.00078	0.00042	1
1,2-Dibromoethane	ND		mg/kg	0.00039	0.00023	1
Ethylbenzene	ND		mg/kg	0.00078	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00044	1
o-Xylene	ND		mg/kg	0.00078	0.00023	1
Xylenes, Total	ND		mg/kg	0.00078	0.00023	1
Isopropylbenzene	ND		mg/kg	0.00078	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:16
 Analyst: LAC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03
 Client ID: PB-821-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:45
 Analyst: LAC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:53
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00026	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:17
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06
 Client ID: PB-821-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:40
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07
 Client ID: PB-821-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:03
 Analyst: NLK
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:27
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00027	1
Xylenes, Total	ND		mg/kg	0.00091	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09
 Client ID: PB-821-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:50
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10
 Client ID: PB-821-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:14
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11
 Client ID: PB-821-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:37
 Analyst: MKS
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12
 Client ID: PB-821-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:00
 Analyst: MKS
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	ND		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00028	1
Xylenes, Total	ND		mg/kg	0.00098	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13
 Client ID: PB-822-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:24
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14
 Client ID: PB-822-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 22:22
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15
 Client ID: PB-822-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:11
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:34
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:58
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	ND		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.055	0.0078	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.055	0.016	1
Xylenes, Total	ND		mg/kg	0.055	0.016	1
Isopropylbenzene	0.040	J	mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	177	Q	70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18
 Client ID: PB-822-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:44
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:10
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:36
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:02
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22
 Client ID: PB-822-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:28
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.00019	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 05:33
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.72		mg/kg	0.056	0.0078	1
p/m-Xylene	1.9		mg/kg	0.11	0.031	1
o-Xylene	0.38		mg/kg	0.056	0.016	1
Xylenes, Total	2.3		mg/kg	0.056	0.016	1
Isopropylbenzene	1.4		mg/kg	0.056	0.0060	1
1,3,5-Trimethylbenzene	5.2		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23 D
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:03
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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1,2,4-Trimethylbenzene	15.		mg/kg	0.22	0.037	2
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:20
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	0.00017	J	mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25
 Client ID: PB-822-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:50
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	0.013		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.00092	J	mg/kg	0.0021	0.00060	1
o-Xylene	0.0018		mg/kg	0.0011	0.00031	1
Xylenes, Total	0.0027	J	mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.0064		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0025		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.028		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 09:50
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:08
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	130		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 09:57
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:32
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	132	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:03
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:56
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	131	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29
 Client ID: DUP-32
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:12
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/07/22 09:30
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 26-28 Batch: WG1659742-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/06/22 10:17
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26-28 Batch: WG1659839-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	127		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:54
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-13,15-16 Batch: WG1660063-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18-22,24,29 Batch: WG1660066-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:54
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17 Batch: WG1660349-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1660398-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 14 Batch: WG1660426-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 25 Batch: WG1660450-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1660454-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 26-28 Batch: WG1659742-2									
1,2-Dibromoethane	120		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 26-28 Batch: WG1659839-3 WG1659839-4								
Methyl tert butyl ether	86		86		63-130	0		20
Benzene	120		110		70-130	9		20
1,2-Dichloroethane	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		105		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	115		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-13,15-16 Batch: WG1660063-3 WG1660063-4								
Methyl tert butyl ether	89		84		66-130	6		30
Benzene	85		82		70-130	4		30
1,2-Dichloroethane	72		69	Q	70-130	4		30
Toluene	84		79		70-130	6		30
1,2-Dibromoethane	92		89		70-130	3		30
Ethylbenzene	84		79		70-130	6		30
p/m-Xylene	88		82		70-130	7		30
o-Xylene	87		82		70-130	6		30
Isopropylbenzene	85		78		70-130	9		30
1,3,5-Trimethylbenzene	85		78		70-130	9		30
1,2,4-Trimethylbenzene	86		78		70-130	10		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	82		82		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		95		70-130
Dibromofluoromethane	91		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18-22,24,29 Batch: WG1660066-3 WG1660066-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17 Batch: WG1660349-3 WG1660349-4								
Methyl tert butyl ether	89		84		66-130	6		30
Benzene	85		82		70-130	4		30
1,2-Dichloroethane	72		69	Q	70-130	4		30
Toluene	84		79		70-130	6		30
1,2-Dibromoethane	92		89		70-130	3		30
Ethylbenzene	84		79		70-130	6		30
p/m-Xylene	88		82		70-130	7		30
o-Xylene	87		82		70-130	6		30
Isopropylbenzene	85		78		70-130	9		30
1,3,5-Trimethylbenzene	85		78		70-130	9		30
1,2,4-Trimethylbenzene	86		78		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		82		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		95		70-130
Dibromofluoromethane	91		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1660398-3 WG1660398-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 14 Batch: WG1660426-3 WG1660426-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
1,2-Dichloroethane	73		77		70-130	5		30
Toluene	93		94		70-130	1		30
1,2-Dibromoethane	97		100		70-130	3		30
Ethylbenzene	93		93		70-130	0		30
p/m-Xylene	96		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 25 Batch: WG1660450-3 WG1660450-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1660454-3 WG1660454-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:22
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	147	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:50
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	130	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03
 Client ID: PB-821-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:40
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	0.083	J	mg/kg	0.18	0.017	1
Phenanthrene	0.22		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.11		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.031	J	mg/kg	0.10	0.020	1
Chrysene	0.098	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:19
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	131	Q	23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 14:36
 Analyst: ALS
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	48		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06
 Client ID: PB-821-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:36
 Analyst: IM
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07
 Client ID: PB-821-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:46
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:26
 Analyst: IM
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	161	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	89		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09
 Client ID: PB-821-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:26
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	132	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10
 Client ID: PB-821-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:53
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11
 Client ID: PB-821-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:30
 Analyst: IM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	127	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12
 Client ID: PB-821-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:02
 Analyst: IM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	154	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	91		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13
 Client ID: PB-822-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:33
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	131	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14
 Client ID: PB-822-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:49
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15
 Client ID: PB-822-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:12
 Analyst: IM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.13	0.026	1
Anthracene	ND		mg/kg	0.13	0.041	1
Pyrene	ND		mg/kg	0.13	0.021	1
Benzo(a)anthracene	ND		mg/kg	0.13	0.024	1
Chrysene	ND		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.13	0.036	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.052	1
Benzo(ghi)perylene	ND		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 14:58
 Analyst: ALS
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:43
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	0.052	J	mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18
 Client ID: PB-822-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 15:21
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 15:44
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:16
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:56
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	130	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	76		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22
 Client ID: PB-822-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:09
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	107		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 16:06
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.6		mg/kg	0.19	0.024	1
Fluorene	2.7		mg/kg	0.19	0.019	1
Phenanthrene	5.2		mg/kg	0.12	0.024	1
Anthracene	0.77		mg/kg	0.12	0.038	1
Pyrene	0.43		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.12		mg/kg	0.12	0.022	1
Chrysene	0.42		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	152	Q	23-120
2-Fluorobiphenyl	43		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 16:29
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25
 Client ID: PB-822-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:06
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.22		mg/kg	0.19	0.018	1
Phenanthrene	0.24		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	129	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	60		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 09:12
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.01	J	ug/l	0.10	0.01	1
Phenanthrene	0.02	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	89		15-120
4-Terphenyl-d14	94		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 09:28
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.01	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	78		15-120
4-Terphenyl-d14	86		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:08
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 19:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	46		15-120
4-Terphenyl-d14	48		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29
 Client ID: DUP-32
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:59
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	81		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/06/22 20:42
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06-15,17,20-22,25,29 Batch: WG1659228-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	146	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 14:13
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 05,16,18-19,23-24 Batch: WG1659229-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/08/22 12:06
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 28 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 08:23
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 26-27 Batch: WG1660007-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	94		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06-15,17,20-22,25,29 Batch: WG1659228-2 WG1659228-3								
Naphthalene	78		78		40-140	0		50
Fluorene	83		86		40-140	4		50
Phenanthrene	80		82		40-140	2		50
Anthracene	82		85		40-140	4		50
Pyrene	82		83		35-142	1		50
Benzo(a)anthracene	88		88		40-140	0		50
Chrysene	86		88		40-140	2		50
Benzo(b)fluoranthene	89		94		40-140	5		50
Benzo(a)pyrene	93		97		40-140	4		50
Benzo(ghi)perylene	83		85		40-140	2		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	151	Q	144	Q	23-120
2-Fluorobiphenyl	75		76		30-120
4-Terphenyl-d14	89		92		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 05,16,18-19,23-24 Batch: WG1659229-2 WG1659229-3								
Naphthalene	52		63		40-140	19		50
Fluorene	61		66		40-140	8		50
Phenanthrene	54		60		40-140	11		50
Anthracene	57		63		40-140	10		50
Pyrene	59		64		35-142	8		50
Benzo(a)anthracene	62		68		40-140	9		50
Chrysene	61		66		40-140	8		50
Benzo(b)fluoranthene	71		76		40-140	7		50
Benzo(a)pyrene	72		77		40-140	7		50
Benzo(ghi)perylene	58		63		40-140	8		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	50		59		23-120
2-Fluorobiphenyl	60		70		30-120
4-Terphenyl-d14	71		75		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 28 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 26-27 Batch: WG1660007-2 WG1660007-3								
Naphthalene	81		87		40-140	7		40
Fluorene	86		89		40-140	3		40
Phenanthrene	85		87		40-140	2		40
Anthracene	87		87		40-140	0		40
Pyrene	89		91		26-127	2		40
Benzo(a)anthracene	86		87		40-140	1		40
Chrysene	82		87		40-140	6		40
Benzo(b)fluoranthene	90		86		40-140	5		40
Benzo(a)pyrene	85		86		40-140	1		40
Benzo(ghi)perylene	89		95		40-140	7		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	72		85		15-120
4-Terphenyl-d14	87		91		41-149

METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	23.1		mg/kg	2.23	0.119	1	07/06/22 11:10	07/07/22 07:43	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02

Date Collected: 07/05/22 09:10

Client ID: PB-821-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.6		mg/kg	2.21	0.118	1	07/06/22 11:10	07/07/22 07:28	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03

Date Collected: 07/05/22 09:20

Client ID: PB-821-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.59		mg/kg	2.02	0.108	1	07/06/22 11:10	07/07/22 07:33	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04

Date Collected: 07/05/22 09:30

Client ID: PB-821-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.60		mg/kg	2.31	0.124	1	07/06/22 11:10	07/07/22 07:38	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05

Date Collected: 07/05/22 09:40

Client ID: PB-821-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.81		mg/kg	2.40	0.129	1	07/06/22 11:10	07/07/22 08:16	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06

Date Collected: 07/05/22 09:50

Client ID: PB-821-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.13		mg/kg	2.47	0.132	1	07/06/22 11:10	07/07/22 08:21	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07

Date Collected: 07/05/22 10:00

Client ID: PB-821-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.40		mg/kg	2.13	0.114	1	07/06/22 11:10	07/07/22 08:26	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.34		mg/kg	2.16	0.116	1	07/06/22 11:10	07/07/22 08:31	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09

Date Collected: 07/05/22 10:20

Client ID: PB-821-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.77		mg/kg	2.10	0.113	1	07/06/22 11:10	07/07/22 08:35	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10

Date Collected: 07/05/22 10:30

Client ID: PB-821-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.7		mg/kg	2.26	0.121	1	07/06/22 11:10	07/07/22 08:40	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11

Date Collected: 07/05/22 10:40

Client ID: PB-821-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.82		mg/kg	2.01	0.108	1	07/06/22 11:10	07/07/22 08:45	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12

Date Collected: 07/05/22 10:50

Client ID: PB-821-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.44		mg/kg	2.01	0.108	1	07/06/22 11:10	07/07/22 08:50	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13

Date Collected: 07/05/22 12:00

Client ID: PB-822-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.86		mg/kg	2.33	0.125	1	07/06/22 11:10	07/07/22 08:54	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14

Date Collected: 07/05/22 12:10

Client ID: PB-822-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.55		mg/kg	2.36	0.127	1	07/06/22 11:10	07/07/22 08:59	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15

Date Collected: 07/05/22 12:20

Client ID: PB-822-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.10		mg/kg	2.47	0.132	1	07/06/22 11:10	07/07/22 09:34	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16

Date Collected: 07/05/22 12:30

Client ID: PB-822-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.73		mg/kg	2.44	0.130	1	07/06/22 11:10	07/07/22 09:39	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.65		mg/kg	2.35	0.126	1	07/06/22 11:10	07/07/22 09:44	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18

Date Collected: 07/05/22 12:50

Client ID: PB-822-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.91		mg/kg	4.52	0.242	2	07/06/22 11:10	07/07/22 10:50	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19

Date Collected: 07/05/22 13:00

Client ID: PB-822-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.27		mg/kg	2.34	0.125	1	07/06/22 11:10	07/07/22 09:54	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20

Date Collected: 07/05/22 13:10

Client ID: PB-822-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	74.3		mg/kg	2.32	0.124	1	07/06/22 11:10	07/07/22 09:59	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.80		mg/kg	2.29	0.123	1	07/06/22 12:10	07/07/22 07:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22

Date Collected: 07/05/22 13:30

Client ID: PB-822-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.9		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 07:37	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23

Date Collected: 07/05/22 13:40

Client ID: PB-822-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.35		mg/kg	2.33	0.125	1	07/06/22 12:10	07/07/22 07:42	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24

Date Collected: 07/05/22 13:50

Client ID: PB-822-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.59		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 07:47	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25

Date Collected: 07/05/22 14:00

Client ID: PB-822-13-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.94		mg/kg	2.28	0.122	1	07/06/22 12:10	07/07/22 08:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26

Date Collected: 07/05/22 14:30

Client ID: FB-070522-1

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:49	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27

Date Collected: 07/05/22 14:35

Client ID: FB-070522-2

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:54	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:59	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29

Date Collected: 07/05/22 00:00

Client ID: DUP-32

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.81		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 08:55	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1659351-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 11:10	07/07/22 07:19	1,6010D	SB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-25,29 Batch: WG1659355-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:10	07/07/22 07:28	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 26-28 Batch: WG1659419-1									
Lead, Total	0.6563	J ug/l	1.000	0.3430	1	07/06/22 14:45	07/06/22 22:40	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1659351-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 Batch: WG1659355-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 26-28 Batch: WG1659419-2								
Lead, Total	101		-		80-120	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1659351-3 QC Sample: L2235694-01 Client ID: PB-821-01-SS01												
Lead, Total	23.1	46.8	54.8	68	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659355-3 QC Sample: L2235694-21 Client ID: PB-822-09-SS01												
Lead, Total	8.80	49.7	38.6	60	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 26-28 QC Batch ID: WG1659419-3 QC Sample: L2234348-01 Client ID: MS Sample												
Lead, Total	21.56	530	573.0	104		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1659351-4 QC Sample: L2235694-01 Client ID: PB-821-01-SS01						
Lead, Total	23.1	21.7	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659355-4 QC Sample: L2235694-21 Client ID: PB-822-09-SS01						
Lead, Total	8.80	9.39	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 26-28 QC Batch ID: WG1659419-4 QC Sample: L2234348-01 Client ID: DUP Sample						
Lead, Total	21.56	21.45	ug/l	1		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-01

Date Collected: 07/05/22 09:00

Client ID: PB-821-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-03

Date Collected: 07/05/22 09:20

Client ID: PB-821-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-06

Date Collected: 07/05/22 09:50

Client ID: PB-821-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-07

Date Collected: 07/05/22 10:00

Client ID: PB-821-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-08

Date Collected: 07/05/22 10:10

Client ID: PB-821-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-09

Date Collected: 07/05/22 10:20

Client ID: PB-821-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-10

Date Collected: 07/05/22 10:30

Client ID: PB-821-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-11

Date Collected: 07/05/22 10:40

Client ID: PB-821-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.7		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-12

Date Collected: 07/05/22 10:50

Client ID: PB-821-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.3		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-13

Date Collected: 07/05/22 12:00

Client ID: PB-822-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-14

Date Collected: 07/05/22 12:10

Client ID: PB-822-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-15

Date Collected: 07/05/22 12:20

Client ID: PB-822-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-18

Date Collected: 07/05/22 12:50

Client ID: PB-822-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-22

Date Collected: 07/05/22 13:30

Client ID: PB-822-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-23

Date Collected: 07/05/22 13:40

Client ID: PB-822-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25
 Client ID: PB-822-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-29

Date Collected: 07/05/22 00:00

Client ID: DUP-32

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1659223-1 QC Sample: L2235694-01 Client ID: PB-821-01-SS01						
Solids, Total	85.6	85.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659225-1 QC Sample: L2235695-01 Client ID: DUP Sample						
Solids, Total	91.0	91.8	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent
F	Absent
G	Absent
H	Absent
I	Absent
J	Absent
K	Absent
L	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-01A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-01B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-01C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-01D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-01E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-01F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-02A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-02B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-02C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-02D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-02E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-02F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-03A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-03B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-03C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-03D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-03E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-03F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-04A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-04B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-04C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-04D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-04E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-04F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-05A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-05B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-05C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-05D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-05E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-05F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-06A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235694-06B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-06C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-06D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235694-06E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235694-06F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235694-07A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235694-07B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-07C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-07D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235694-07E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235694-07F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235694-08A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-08B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-08C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-08D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-08E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-08F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-09A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-09B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-09C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-09D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-09F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-10A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-10B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-10C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-10D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-10F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-11A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-11B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-11C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-11D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-11F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-12A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-12B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-12C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-12D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-12F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-13A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-13B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-13C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-13D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-13F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-14A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-14B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-14C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-14D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-14F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-15A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-15B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-15C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-15D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-15E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-15F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-16A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-16B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-16C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-16D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-16E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-16F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-17A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-17B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-17C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-17D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-17E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-17F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-18A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-18B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-18C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-18D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-18E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-18F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-19A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-19B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-19C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-19D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235694-19E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235694-19F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-20A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-20B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-20C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-20D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235694-20E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235694-20F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-21A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-21B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-21C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-21D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-21F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-22A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-22B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-22C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-22D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-22F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-23A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-23B	Vial water preserved	C	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-23C	Vial water preserved	C	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-23D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2235694-23E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2235694-23F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-24A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-24B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-24C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-24D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-24E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-24F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-25A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-25B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-25C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-25D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-25E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-25F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-26A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-26B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-26C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-26G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-26H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-26J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-27A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-27B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-27C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-27G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-27H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-27J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-28A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-28B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-28C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-28G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-28H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-28J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-29A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-29B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-29C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-29D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-29E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-29F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

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Report Date: 07/11/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

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Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard RUSH (ONLY IF PRE-APPROVED)

Due Date: **2-DAY** Time:

Westborough, MA
TEL: 508-896-8200
FAX: 508-896-9182

Manfield, MA
TEL: 508-822-6300
FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcoglobal.com

Date Rec'd in Lab: 7/6/22

ALPHA Job #: L2235694

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

Short list 1-5

ALPHA Lab ID	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
35694-01	PB-821-01-5501	7/5/22	900	S	an	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-02	PB-821-02-5501		910			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-03	PB-821-03-5501		920			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-04	PB-821-04-5501		930			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-05	PB-821-05-5501		940			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-06	PB-821-06-5501		950			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-07	PB-821-07-5501		1000			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-08	PB-821-08-5501		1010			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-09	PB-821-09-5501		1020			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-10	PB-821-10-5501		1030			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 1615	<i>[Signature]</i>	7/5/22 1615
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1801
<i>[Signature]</i>	7/5/22 2000	<i>[Signature]</i>	7/5/22 2000
<i>[Signature]</i>	7/5/22	<i>[Signature]</i>	7/5/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA TEL: 508-896-9226 FAX: 508-896-9193
 Mansfield, MA TEL: 508-827-3300 FAX: 308-872-3288

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Fax: _____
 Email: William.Schmidt@ransomenv.com
 These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com. William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35694-11	PB-821-11-5501	7/5/22	1040	S	a
-12	PB-821-12-5501		1050		
-13	PB-822-01-5501		1200		
-14	PB-822-02-5501		1210		
-15	PB-822-03-5501		1230		
-16	PB-822-04-5501		1250		
-17	PB-822-05-5501		1240		
-18	PB-822-06-5501		1250		
-19	PB-822-07-5501		1300		
-20	PB-822-08-5501		1310		

Date Rec'd in Lab: 7/6/22 ALPHA Job #: L2235694

Report Information	Data Deliverables	Billing Information
<input type="checkbox"/> FAX	<input checked="" type="checkbox"/> EMAIL	<input type="checkbox"/> Same as Client info
<input checked="" type="checkbox"/> ADEs	<input type="checkbox"/> Add'l Deliverables	PO #: 3562

Regulatory Requirements/Report Limits
State/Fed/Program _____
Criteria _____

--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS

S-1 + S1 + MGS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING

Filtration
 Done
 Not Needed
 Lab to do
 Lab to do (Please specify below)

Container Type	-	-	0	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Reinstated By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22/105	<i>[Signature]</i>	7/5/22/105
<i>[Signature]</i>	7/5/22/115	<i>[Signature]</i>	7/5/22/115
<i>[Signature]</i>	7/5/22/110	<i>[Signature]</i>	7/5/22/110
<i>[Signature]</i>	7/5/22	<i>[Signature]</i>	7/5/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

LABORATORY

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA Mansfield, MA
 TEL: 508-294-9229 TEL: 508-822-9300
 FAX: 508-859-9193 FAX: 508-822-3286

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:
2-DAY

Date Rec'd in Lab: **7/6/22**

ALPHA Job #: **L2235694**

Report Information Data Deliverables

FAX EMAIL
 ADEs Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@alphaphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

Short list 1-5

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials														
		Date	Time																
35694-21	PB-822-09-5501	7/5/22	1320	S	aw	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-22	PB-822-10-5501		1330			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-23	PB-822-11-5501		1340			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-24	PB-822-12-5501		1350			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-25	PB-822-15-5501		1400			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-26	FB-070522-1		1430	W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-27	FB-070522-2		1435			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-28	FB-070522-3	↓	1440	↓	↓	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-29	DUP-29	↓		S	↓	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING

- Filtration
- Dose
- Not Needed
- Lab to do
- Preservation
- Lab to do

(Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35694-21	PB-822-09-5501	7/5/22	1320	S	aw
-22	PB-822-10-5501		1330		
-23	PB-822-11-5501		1340		
-24	PB-822-12-5501		1350		
-25	PB-822-15-5501		1400		
-26	FB-070522-1		1430	W	
-27	FB-070522-2		1435		
-28	FB-070522-3	↓	1440	↓	↓
-29	DUP-29	↓		S	↓

Container Type	-	-	0	-	-	-	-	-	-	-	-
Preservatives	-	-	-	-	-	-	-	-	-	-	-

Retrieved By:	Date/Time	Received By:	Date/Time
[Signature]	7/5/22 1415	[Signature]	7/5/22 1415
[Signature]	7/5/22 1725	[Signature]	7/5/22 1800
[Signature]	7/5/22 2100	[Signature]	7/5/22 2200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All services submitted are subject to Alpha's Payment Terms.

SAMPLE HANDLING

PADEP Short List Analytical Suites per Table III-5:

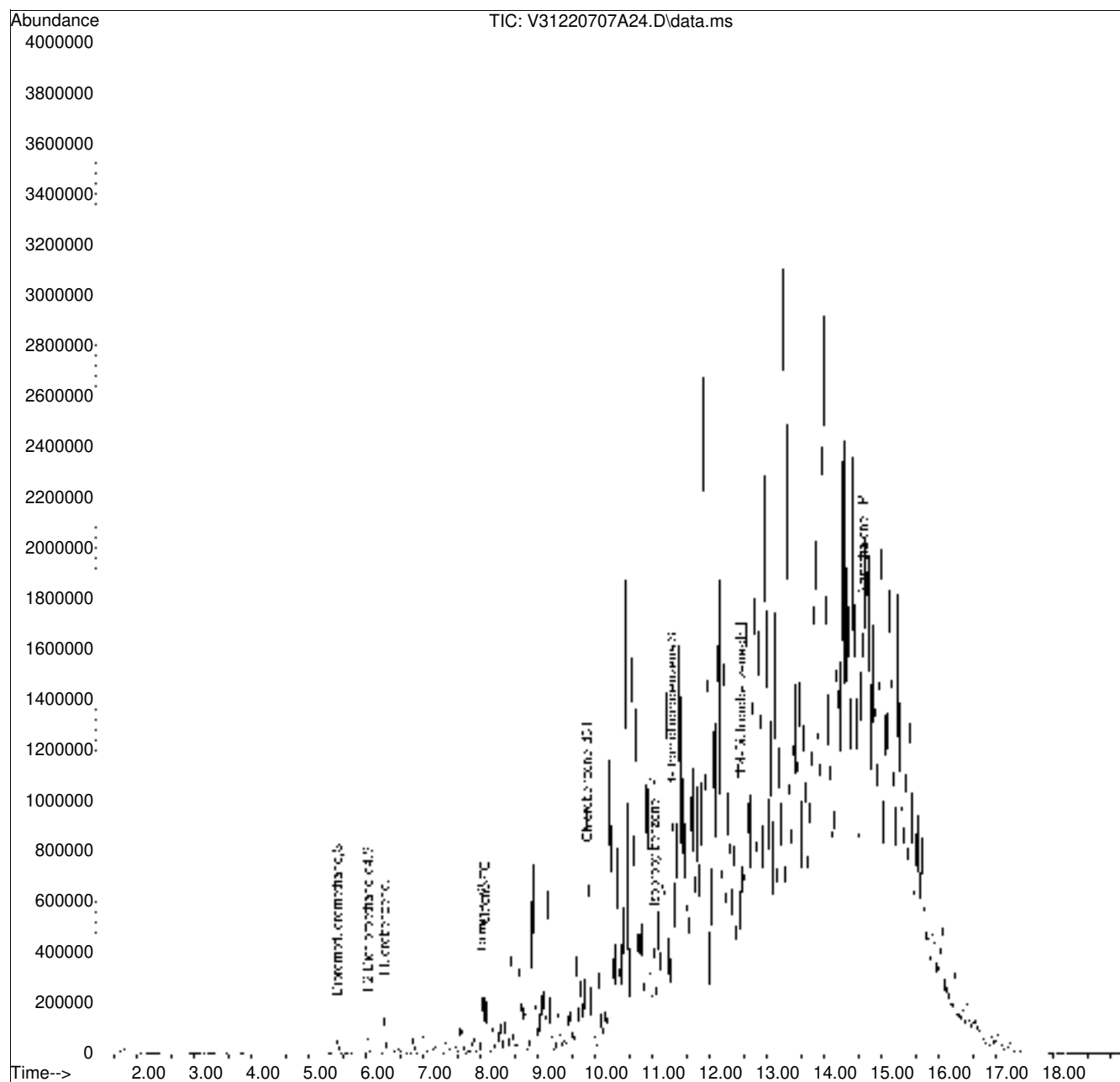
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707A\
 Data File : V31220707A24.D
 Acq On : 07 Jul 2022 04:58 pm
 Operator : VOA131:JC
 Sample : 12235694-17, 31h, 6.74, 5, 0.100,, a, r2f
 Misc : WG1660349, ICAL19050
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 05:59:20 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220707A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07A\V31220707A01.D•

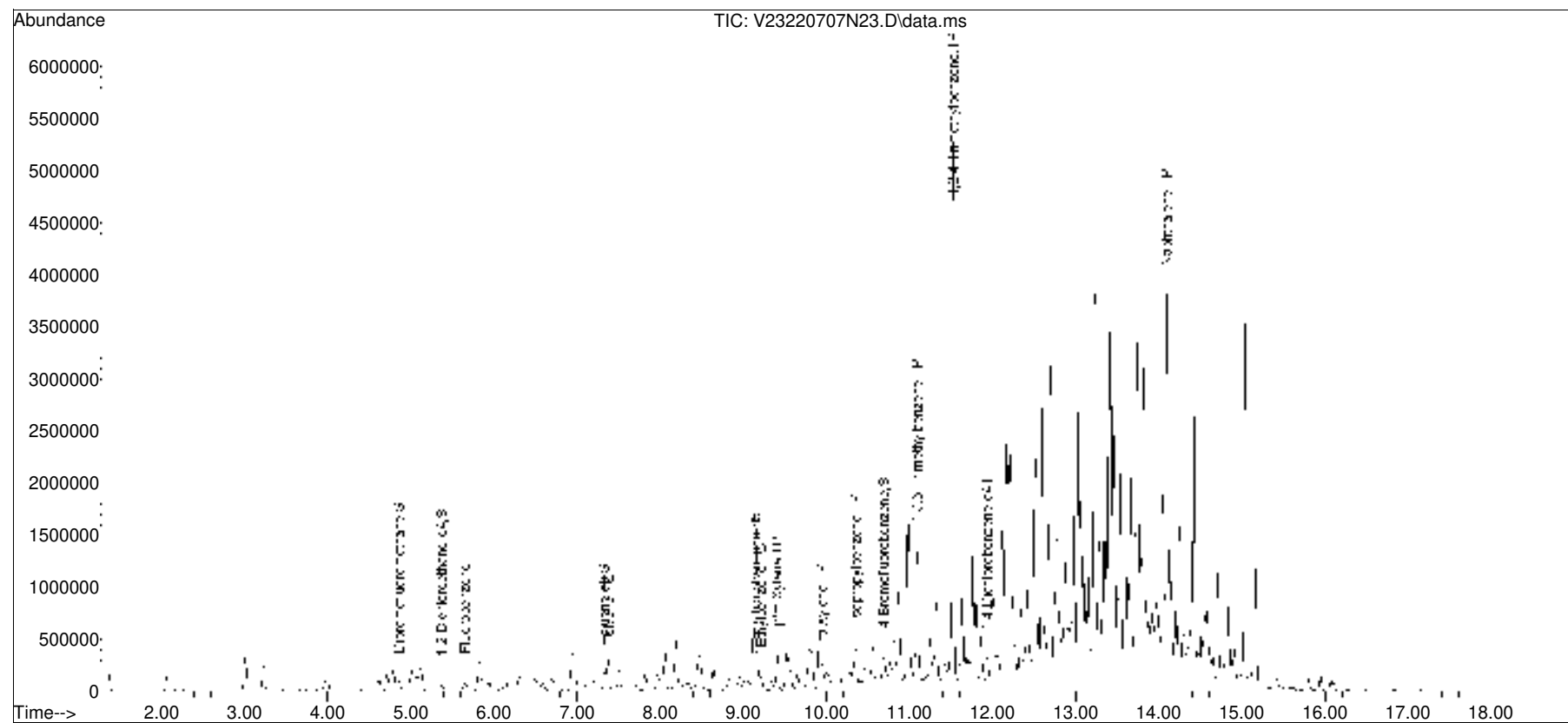


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220707N\
Data File : V23220707N23.D
Acq On : 08 Jul 2022 05:33 am
Operator : VOA123:MKS
Sample : 12235694-23, 31h, 6.57, 5, 0.100,, a, r2f
Misc : WG1660398, ICAL19133
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 08 06:51:52 2022
Quant Method : I:\VOLATILES\VOA123\2022\220707N\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V23220707N01.D•

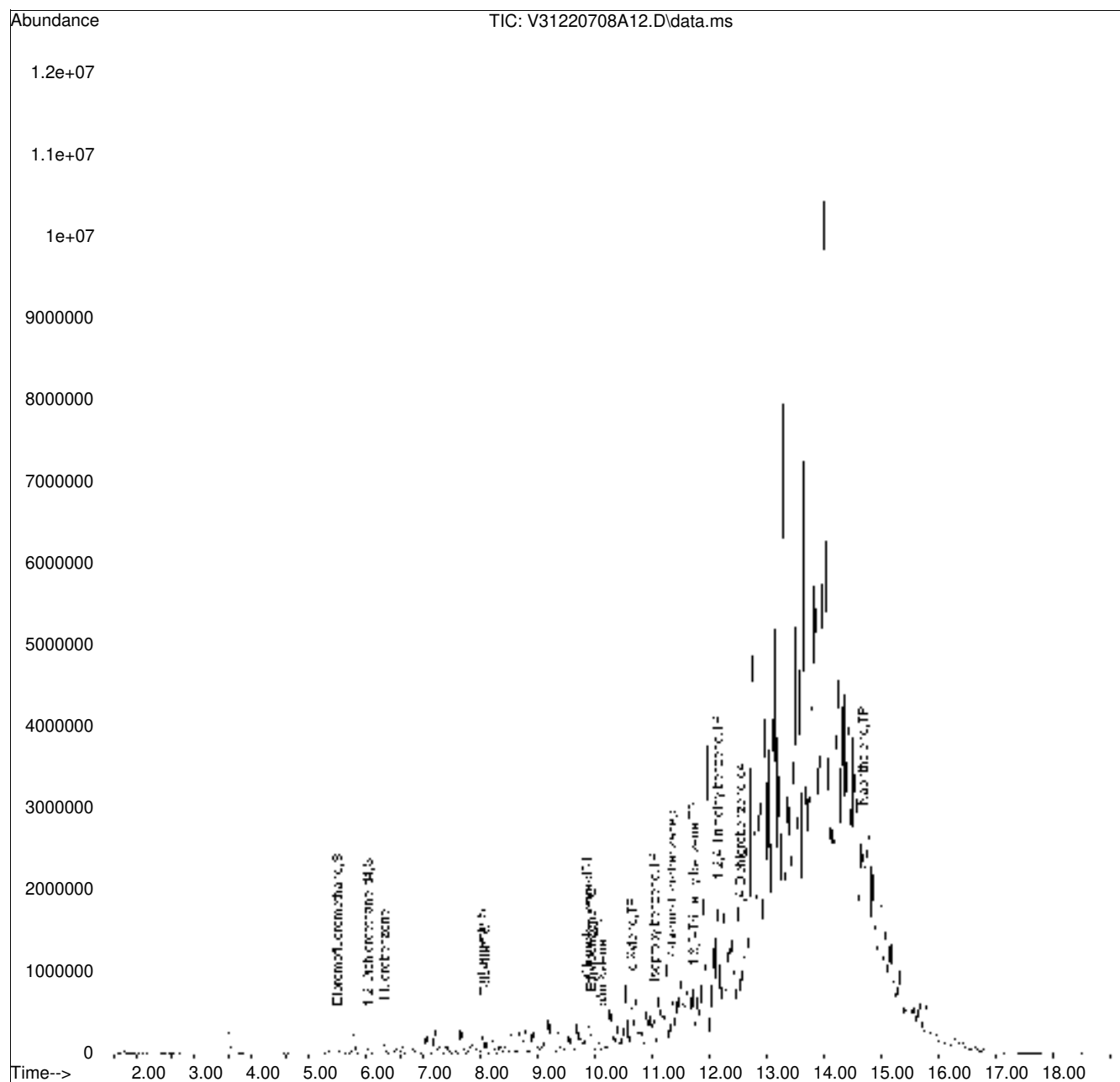


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A12.D
 Acq On : 08 Jul 2022 11:50 am
 Operator : VOA131:MKS
 Sample : 12235694-25,31,5.45,5,,c,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 08 12:23:51 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•





ANALYTICAL REPORT

Lab Number:	L2235695
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/11/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235695-01	PB-833-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 08:45	07/05/22
L2235695-02	PB-833-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 08:55	07/05/22
L2235695-03	PB-833-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:00	07/05/22
L2235695-04	PB-833-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:05	07/05/22
L2235695-05	PB-833-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:10	07/05/22
L2235695-06	PB-833-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:20	07/05/22
L2235695-07	PB-833-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:30	07/05/22
L2235695-08	PB-833-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:40	07/05/22
L2235695-09	PB-833-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:45	07/05/22
L2235695-10	PB-833-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:55	07/05/22
L2235695-11	PB-833-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:00	07/05/22
L2235695-12	PB-833-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:10	07/05/22
L2235695-13	PB-833-13-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:20	07/05/22
L2235695-14	PB-833-14-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:30	07/05/22
L2235695-15	PB-833-15-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:40	07/05/22
L2235695-16	PB-833-16-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:50	07/05/22
L2235695-17	PB-836-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:30	07/05/22
L2235695-18	PB-836-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:40	07/05/22
L2235695-19	PB-836-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:50	07/05/22
L2235695-20	PB-836-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:00	07/05/22
L2235695-21	PB-836-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:30	07/05/22
L2235695-22	PB-836-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:40	07/05/22
L2235695-23	PB-836-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:50	07/05/22
L2235695-24	PB-836-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 14:00	07/05/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235695-25	FB-070522-4	WATER	PHILADELPHIA, PA	07/05/22 14:10	07/05/22
L2235695-26	FB-070522-5	WATER	PHILADELPHIA, PA	07/05/22 14:20	07/05/22
L2235695-27	DUP-33	SOIL	PHILADELPHIA, PA	07/05/22 00:00	07/05/22
L2235695-28	TB-070522	WATER	PHILADELPHIA, PA	07/05/22 00:00	07/05/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Case Narrative (continued)

Report Submission

July 11, 2022: This final report includes the results of all requested analyses.

July 08, 2022: This is a preliminary report.

July 08, 2022: This is a preliminary report.

July 07, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235695-27: The Client ID was specified by the client.

Volatile Organics

L2235695-01: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235695-02: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (25%) and the surrogate recovery for 4-bromofluorobenzene (197%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. A high-level analysis was performed, and those results are also reported.

L2235695-13: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2235695-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (357%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235695-18: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (353%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Case Narrative (continued)

chromatogram is included as an attachment to this report.

L2235695-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (224%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235695-20: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2235695-21: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (178%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2235695-02D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Total Metals

The WG1659360-3 MS recovery, performed on L2235695-15, is outside the acceptance criteria for lead (0%). A post digestion spike was performed and yielded an unacceptable recovery for lead (58%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1659360-4 Laboratory Duplicate RPD for lead (107%), performed on L2235695-15, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1659360-6 serial dilution analysis, associated with L2235695-15, had a %D above the acceptance criteria for lead (39%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 07/11/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.060	J	mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.034	J	mg/kg	0.072	0.010	1
p/m-Xylene	0.094	J	mg/kg	0.14	0.040	1
o-Xylene	0.068	J	mg/kg	0.072	0.021	1
Xylenes, Total	0.16	J	mg/kg	0.072	0.021	1
Isopropylbenzene	0.068	J	mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.017	J	mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.054	J	mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:05
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.024	J	mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	0.049	J	mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.098		mg/kg	0.075	0.010	1
p/m-Xylene	0.19		mg/kg	0.15	0.042	1
o-Xylene	0.085		mg/kg	0.075	0.022	1
Xylenes, Total	0.28		mg/kg	0.075	0.022	1
Isopropylbenzene	0.014	J	mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.029	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:07
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.0018		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0062		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.019		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.030		mg/kg	0.0025	0.00070	1
o-Xylene	0.018		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.048		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.0066		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.0096		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.039		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	197	Q	70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:31
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00084	0.00021	1
Toluene	ND		mg/kg	0.00084	0.00045	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00024	1
Ethylbenzene	ND		mg/kg	0.00084	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00047	1
o-Xylene	ND		mg/kg	0.00084	0.00024	1
Xylenes, Total	ND		mg/kg	0.00084	0.00024	1
Isopropylbenzene	ND		mg/kg	0.00084	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:36
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05
 Client ID: PB-833-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:02
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06
 Client ID: PB-833-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:29
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07
 Client ID: PB-833-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:56
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:23
 Analyst: NLK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:50
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00074	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10
 Client ID: PB-833-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:16
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:43
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12
 Client ID: PB-833-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:09
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:36
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	0.041		mg/kg	0.00095	0.00013	1
p/m-Xylene	0.23		mg/kg	0.0019	0.00053	1
o-Xylene	0.020		mg/kg	0.00095	0.00028	1
Xylenes, Total	0.25		mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.065		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.40	E	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	1.3	E	mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	357	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 09:31
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	ND		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.016	J	mg/kg	0.061	0.0087	1
p/m-Xylene	0.086	J	mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.061	0.018	1
Xylenes, Total	0.086	J	mg/kg	0.061	0.018	1
Isopropylbenzene	0.029	J	mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	0.26		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.68		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:02
 Analyst: MKS
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15
 Client ID: PB-833-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:29
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	ND		mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00087	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00049	1
o-Xylene	ND		mg/kg	0.00087	0.00025	1
Xylenes, Total	ND		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 01:50
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00041	1
Xylenes, Total	ND		mg/kg	0.0014	0.00041	1
Isopropylbenzene	0.00026	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-17
 Client ID: PB-836-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:23
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.00035	J	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0068		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00047	J	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-18
 Client ID: PB-836-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:33
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	0.00069	J	mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.0029		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0029		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	353	Q	70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-19
 Client ID: PB-836-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 09:54
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
Toluene	ND		mg/kg	0.0017	0.00092	1
Ethylbenzene	0.00085	J	mg/kg	0.0017	0.00024	1
Isopropylbenzene	0.17		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00063	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.0029	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	75		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	224	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:43
 Analyst: JC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	0.034	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	0.65		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.044	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00065	1
Ethylbenzene	0.00018	J	mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.012		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00042	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:17
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	0.00078		mg/kg	0.00073	0.00024	1
Toluene	0.0013	J	mg/kg	0.0015	0.00079	1
Ethylbenzene	0.0012	J	mg/kg	0.0015	0.00021	1
Isopropylbenzene	0.0054		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0026	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	76		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	178	Q	70-130
Dibromofluoromethane	86		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-22
 Client ID: PB-836-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:36
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00030	J	mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.00031	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23
 Client ID: PB-836-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 19:03
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00040	J	mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00092	0.00050	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
Isopropylbenzene	0.00016	J	mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-24
 Client ID: PB-836-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:33
 Analyst: LAC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00050	J	mg/kg	0.00062	0.00021	1
Toluene	ND		mg/kg	0.0012	0.00068	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
Isopropylbenzene	0.00020	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:10
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 14:45
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	130		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:17
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 14:21
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	129		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:00
 Analyst: LAC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-28
 Client ID: TB-070522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:24
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-28
 Client ID: TB-070522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 15:10
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	132	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/07/22 09:30
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-26,28 Batch: WG1659742-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/06/22 10:17
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-26,28 Batch: WG1659839-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	127		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 24,27 Batch: WG1660052-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03 Batch: WG1660066-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-15,17,22-23 Batch: WG1660068-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 20 Batch: WG1660421-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19-21 Batch: WG1660450-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13 Batch: WG1660454-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660464-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,18 Batch: WG1660468-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1660481-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1660939-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-26,28 Batch: WG1659742-2									
1,2-Dibromoethane	120		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-26,28 Batch: WG1659839-3 WG1659839-4								
Methyl tert butyl ether	86		86		63-130	0		20
Benzene	120		110		70-130	9		20
1,2-Dichloroethane	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		105		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	115		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 24,27 Batch: WG1660052-3 WG1660052-4								
Methyl tert butyl ether	93		92		66-130	1		30
Benzene	97		96		70-130	1		30
Toluene	92		95		70-130	3		30
Ethylbenzene	94		95		70-130	1		30
Isopropylbenzene	102		104		70-130	2		30
1,3,5-Trimethylbenzene	100		102		70-130	2		30
1,2,4-Trimethylbenzene	99		101		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		98		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	110		110		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03 Batch: WG1660066-3 WG1660066-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-15,17,22-23 Batch: WG1660068-3 WG1660068-4								
Methyl tert butyl ether	80		77		66-130	4		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		86		70-130	2		30
Toluene	89		88		70-130	1		30
1,2-Dibromoethane	93		90		70-130	3		30
Ethylbenzene	89		88		70-130	1		30
p/m-Xylene	93		92		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	91		89		70-130	2		30
1,3,5-Trimethylbenzene	91		89		70-130	2		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	103		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 20 Batch: WG1660421-3 WG1660421-4								
Methyl tert butyl ether	80		77		66-130	4		30
Benzene	89		88		70-130	1		30
Toluene	89		88		70-130	1		30
Ethylbenzene	89		88		70-130	1		30
Isopropylbenzene	91		89		70-130	2		30
1,3,5-Trimethylbenzene	91		89		70-130	2		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	102		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19-21 Batch: WG1660450-3 WG1660450-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
Toluene	86		87		70-130	1		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13 Batch: WG1660454-3 WG1660454-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660464-3 WG1660464-4								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	99		95		70-130	4		30
1,2-Dichloroethane	102		99		70-130	3		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	98		95		70-130	3		30
Ethylbenzene	96		92		70-130	4		30
p/m-Xylene	93		90		70-130	3		30
o-Xylene	92		90		70-130	2		30
Isopropylbenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	100		96		70-130	4		30
1,2,4-Trimethylbenzene	98		96		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	106		110		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,18 Batch: WG1660468-3 WG1660468-4								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	99		95		70-130	4		30
1,2-Dichloroethane	102		99		70-130	3		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	98		95		70-130	3		30
Ethylbenzene	96		92		70-130	4		30
p/m-Xylene	93		90		70-130	3		30
o-Xylene	92		90		70-130	2		30
Isopropylbenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	100		96		70-130	4		30
1,2,4-Trimethylbenzene	98		96		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	106		110		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1660481-3 WG1660481-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1660939-3 WG1660939-4								
Methyl tert butyl ether	86		91		66-130	6		30
Benzene	85		88		70-130	3		30
1,2-Dichloroethane	67	Q	72		70-130	7		30
Toluene	82		87		70-130	6		30
1,2-Dibromoethane	88		97		70-130	10		30
Ethylbenzene	81		87		70-130	7		30
p/m-Xylene	84		90		70-130	7		30
o-Xylene	85		91		70-130	7		30
Isopropylbenzene	81		90		70-130	11		30
1,3,5-Trimethylbenzene	81		88		70-130	8		30
1,2,4-Trimethylbenzene	82		91		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:13
 Analyst: IM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.022	J	mg/kg	0.18	0.022	1
Fluorene	0.061	J	mg/kg	0.18	0.018	1
Phenanthrene	0.079	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.018	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	48		30-120
4-Terphenyl-d14	43		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02 D
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 15:25
 Analyst: WR
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.16	J	mg/kg	0.93	0.11	5
Fluorene	ND		mg/kg	0.93	0.090	5
Phenanthrene	1.2		mg/kg	0.56	0.11	5
Anthracene	0.76		mg/kg	0.56	0.18	5
Pyrene	1.2		mg/kg	0.56	0.092	5
Benzo(a)anthracene	0.16	J	mg/kg	0.56	0.10	5
Chrysene	0.40	J	mg/kg	0.56	0.096	5
Benzo(b)fluoranthene	0.18	J	mg/kg	0.56	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.74	0.23	5
Benzo(ghi)perylene	0.12	J	mg/kg	0.74	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:03
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:16
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05
 Client ID: PB-833-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:38
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06
 Client ID: PB-833-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:23
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	64		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07
 Client ID: PB-833-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:01
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.031	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:22
 Analyst: ALS
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.038	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.029	J	mg/kg	0.11	0.020	1
Chrysene	0.028	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.045	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.024	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:31
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10
 Client ID: PB-833-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:38
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:14
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12
 Client ID: PB-833-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:30
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:15
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.085	J	mg/kg	0.19	0.018	1
Phenanthrene	0.16		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:07
 Analyst: ALS
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15
 Client ID: PB-833-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:45
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	92		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:00
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-17
 Client ID: PB-836-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:59
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.18	0.022	1
Fluorene	0.75		mg/kg	0.18	0.018	1
Phenanthrene	1.2		mg/kg	0.11	0.022	1
Anthracene	0.24		mg/kg	0.11	0.036	1
Pyrene	0.54		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.26		mg/kg	0.11	0.021	1
Chrysene	0.27		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.43		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.40		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.28		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	104		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-18
 Client ID: PB-836-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 08:22
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.056	J	mg/kg	0.20	0.024	1
Fluorene	0.058	J	mg/kg	0.20	0.019	1
Phenanthrene	0.37		mg/kg	0.12	0.024	1
Anthracene	0.11	J	mg/kg	0.12	0.039	1
Pyrene	0.33		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.21		mg/kg	0.12	0.022	1
Chrysene	0.20		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.22		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.20		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	94		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-19
 Client ID: PB-836-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:37
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037	J	mg/kg	0.20	0.024	1
Fluorene	0.030	J	mg/kg	0.20	0.019	1
Phenanthrene	0.070	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	0.10	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.061	J	mg/kg	0.12	0.022	1
Chrysene	0.066	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.086	J	mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.076	J	mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.068	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:38
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 14:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.19	0.024	1
Fluorene	0.76		mg/kg	0.19	0.019	1
Phenanthrene	5.6		mg/kg	0.12	0.023	1
Anthracene	1.2		mg/kg	0.12	0.038	1
Pyrene	7.4		mg/kg	0.12	0.019	1
Benzo(a)anthracene	2.2		mg/kg	0.12	0.022	1
Chrysene	2.2		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	2.9		mg/kg	0.12	0.032	1
Benzo(a)pyrene	3.2		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	2.4		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:52
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.029	J	mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.056	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.057	J	mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.038	J	mg/kg	0.11	0.021	1
Chrysene	0.041	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.047	J	mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.025	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-22
 Client ID: PB-836-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:30
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.079	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.14		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.096	J	mg/kg	0.11	0.021	1
Chrysene	0.10	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.15		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.12	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.070	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23
 Client ID: PB-836-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:53
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-24
 Client ID: PB-836-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:45
 Analyst: ALS
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 10:01
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.01	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	87		15-120
4-Terphenyl-d14	84		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 10:18
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.02	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	91		15-120
4-Terphenyl-d14	101		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:08
 Analyst: ALS
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	92		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/06/22 21:52
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-19 Batch: WG1659272-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	97		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 23:24
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-24,27 Batch: WG1659273-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	102		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 23:09
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 20 Batch: WG1659873-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	99		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/07/22 08:23
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-26 Batch: WG1660007-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	94		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-19 Batch: WG1659272-2 WG1659272-3								
Naphthalene	59		56		40-140	5		50
Fluorene	63		60		40-140	5		50
Phenanthrene	60		57		40-140	5		50
Anthracene	61		58		40-140	5		50
Pyrene	60		57		35-142	5		50
Benzo(a)anthracene	66		62		40-140	6		50
Chrysene	65		61		40-140	6		50
Benzo(b)fluoranthene	69		64		40-140	8		50
Benzo(a)pyrene	71		66		40-140	7		50
Benzo(ghi)perylene	62		58		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	115		105		23-120
2-Fluorobiphenyl	59		55		30-120
4-Terphenyl-d14	66		62		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-24,27 Batch: WG1659273-2 WG1659273-3								
Naphthalene	80		82		40-140	2		50
Fluorene	95		99		40-140	4		50
Phenanthrene	84		86		40-140	2		50
Anthracene	89		92		40-140	3		50
Pyrene	92		94		35-142	2		50
Benzo(a)anthracene	99		102		40-140	3		50
Chrysene	97		98		40-140	1		50
Benzo(b)fluoranthene	110		113		40-140	3		50
Benzo(a)pyrene	114		115		40-140	1		50
Benzo(ghi)perylene	93		95		40-140	2		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	76		76		23-120
2-Fluorobiphenyl	90		92		30-120
4-Terphenyl-d14	105		109		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 20 Batch: WG1659873-2 WG1659873-3								
Naphthalene	94		85		40-140	10		50
Fluorene	108		98		40-140	10		50
Phenanthrene	95		85		40-140	11		50
Anthracene	101		91		40-140	10		50
Pyrene	103		93		35-142	10		50
Benzo(a)anthracene	111		102		40-140	8		50
Chrysene	109		99		40-140	10		50
Benzo(b)fluoranthene	121		115		40-140	5		50
Benzo(a)pyrene	124		114		40-140	8		50
Benzo(ghi)perylene	104		95		40-140	9		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	92		82		23-120
2-Fluorobiphenyl	105		97		30-120
4-Terphenyl-d14	118		107		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-26 Batch: WG1660007-2 WG1660007-3								
Naphthalene	81		87		40-140	7		40
Fluorene	86		89		40-140	3		40
Phenanthrene	85		87		40-140	2		40
Anthracene	87		87		40-140	0		40
Pyrene	89		91		26-127	2		40
Benzo(a)anthracene	86		87		40-140	1		40
Chrysene	82		87		40-140	6		40
Benzo(b)fluoranthene	90		86		40-140	5		40
Benzo(a)pyrene	85		86		40-140	1		40
Benzo(ghi)perylene	89		95		40-140	7		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	72		85		15-120
4-Terphenyl-d14	87		91		41-149

METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01

Date Collected: 07/05/22 08:45

Client ID: PB-833-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	24.1		mg/kg	2.06	0.110	1	07/06/22 12:10	07/07/22 09:00	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02

Date Collected: 07/05/22 08:55

Client ID: PB-833-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	278		mg/kg	2.12	0.114	1	07/06/22 12:10	07/07/22 09:05	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03

Date Collected: 07/05/22 09:00

Client ID: PB-833-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	29.0		mg/kg	2.23	0.119	1	07/06/22 12:10	07/07/22 09:09	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04

Date Collected: 07/05/22 09:05

Client ID: PB-833-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.95		mg/kg	2.22	0.119	1	07/06/22 12:10	07/07/22 09:14	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05

Date Collected: 07/05/22 09:10

Client ID: PB-833-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.16		mg/kg	2.14	0.115	1	07/06/22 12:10	07/07/22 09:18	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06

Date Collected: 07/05/22 09:20

Client ID: PB-833-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.48		mg/kg	2.34	0.126	1	07/06/22 12:10	07/07/22 09:23	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07

Date Collected: 07/05/22 09:30

Client ID: PB-833-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	16.9		mg/kg	2.24	0.120	1	07/06/22 12:10	07/07/22 09:27	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08

Date Collected: 07/05/22 09:40

Client ID: PB-833-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	121		mg/kg	10.7	0.575	5	07/06/22 12:10	07/07/22 16:48	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09

Date Collected: 07/05/22 09:45

Client ID: PB-833-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	31.7		mg/kg	2.20	0.118	1	07/06/22 12:10	07/07/22 10:47	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10

Date Collected: 07/05/22 09:55

Client ID: PB-833-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	69.3		mg/kg	4.47	0.240	2	07/06/22 12:10	07/07/22 11:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11

Date Collected: 07/05/22 10:00

Client ID: PB-833-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	128		mg/kg	2.20	0.118	1	07/06/22 12:10	07/07/22 10:56	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12
 Client ID: PB-833-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	41.6		mg/kg	2.22	0.119	1	07/06/22 12:10	07/07/22 11:00	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.72		mg/kg	2.24	0.120	1	07/06/22 12:10	07/07/22 11:05	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14

Date Collected: 07/05/22 10:30

Client ID: PB-833-14-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.59		mg/kg	2.19	0.117	1	07/06/22 12:10	07/07/22 11:10	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15

Date Collected: 07/05/22 10:40

Client ID: PB-833-15-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	127		mg/kg	2.20	0.118	1	07/06/22 12:30	07/07/22 07:39	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	123		mg/kg	2.13	0.114	1	07/06/22 12:30	07/07/22 08:01	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25

Date Collected: 07/05/22 14:10

Client ID: FB-070522-4

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 01:04	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 01:10	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-14 Batch: WG1659355-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:10	07/07/22 07:28	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15-16 Batch: WG1659360-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:30	07/07/22 07:30	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 25-26 Batch: WG1659419-1									
Lead, Total	0.6563	J ug/l	1.000	0.3430	1	07/06/22 14:45	07/06/22 22:40	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 Batch: WG1659355-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 15-16 Batch: WG1659360-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 25-26 Batch: WG1659419-2								
Lead, Total	101		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1659355-3 QC Sample: L2235694-21 Client ID: MS Sample												
Lead, Total	8.80	49.7	38.6	60	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-3 QC Sample: L2235695-15 Client ID: PB-833-15-SS01												
Lead, Total	127	46.8	46.0	0	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 25-26 QC Batch ID: WG1659419-3 QC Sample: L2234348-01 Client ID: MS Sample												
Lead, Total	21.56	530	573.0	104		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1659355-4 QC Sample: L2235694-21 Client ID: DUP Sample						
Lead, Total	8.80	9.39	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-4 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Lead, Total	127	38.4	mg/kg	107	Q	20
Total Metals - Mansfield Lab Associated sample(s): 25-26 QC Batch ID: WG1659419-4 QC Sample: L2234348-01 Client ID: DUP Sample						
Lead, Total	21.56	21.45	ug/l	1		20

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-6 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Lead, Total	127	177	mg/kg	39	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-02

Date Collected: 07/05/22 08:55

Client ID: PB-833-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05
 Client ID: PB-833-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-06

Date Collected: 07/05/22 09:20

Client ID: PB-833-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-07

Date Collected: 07/05/22 09:30

Client ID: PB-833-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235695**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-10

Client ID: PB-833-10-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:55

Date Received: 07/05/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.5		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-12

Date Collected: 07/05/22 10:10

Client ID: PB-833-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-15

Date Collected: 07/05/22 10:40

Client ID: PB-833-15-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-17

Date Collected: 07/05/22 12:30

Client ID: PB-836-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-18

Date Collected: 07/05/22 12:40

Client ID: PB-836-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-19

Date Collected: 07/05/22 12:50

Client ID: PB-836-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-20

Date Collected: 07/05/22 13:00

Client ID: PB-836-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-22

Date Collected: 07/05/22 13:40

Client ID: PB-836-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23

Date Collected: 07/05/22 13:50

Client ID: PB-836-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-24

Date Collected: 07/05/22 14:00

Client ID: PB-836-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1659225-1 QC Sample: L2235695-01 Client ID: PB-833-01-SS01						
Solids, Total	91.0	91.8	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 15-24,27 QC Batch ID: WG1659226-1 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Solids, Total	88.6	89.5	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
D	Absent
F	Absent
G	Absent
H	Absent
I	Absent
J	Absent
K	Absent
L	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-01A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-01B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-01C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 16:26	PA-8260HLW(14)
L2235695-01D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-01E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-01F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-02A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-02B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-02C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-02D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-02E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-02F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-03A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-03B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-03C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-03D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-03E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-03F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-04A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-04B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-04C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-04D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-04E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-04F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-05A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-05B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-05C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-05D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-05E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-05F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-06A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235695-06B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-06C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-06D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235695-06E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235695-06F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235695-07A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-07B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-07C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-07D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-07E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-07F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-08A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-08B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-08C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-08D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-08E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-08F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-09A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-09B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-09C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-09D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-09E	Metals Only-Glass 60mL/2oz unpreserved	H	NA		3.8	Y	Absent		PB-TI(180)
L2235695-09F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-10A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-10B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-10C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-10D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-10E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-10F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-11A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235695-11B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-11C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-11D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235695-11E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235695-11F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235695-12A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235695-12B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-12C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-12D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235695-12E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-12F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235695-13A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-13B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-13C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-13D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-13E	Metals Only-Glass 60mL/2oz unpreserved	G	NA		3.9	Y	Absent		PB-TI(180)
L2235695-13F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-14A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-14B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-14C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-14D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-14E	Metals Only-Glass 60mL/2oz unpreserved	G	NA		3.9	Y	Absent		PB-TI(180)
L2235695-14F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-15A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235695-15B	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-15C	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-15D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235695-15E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		4.2	Y	Absent		PB-TI(180)
L2235695-15F	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235695-16A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235695-16B	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-16C	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-16D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235695-16E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		4.2	Y	Absent		PB-TI(180)
L2235695-16F	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235695-17A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-17B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-17C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-17D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-17F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-18A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-18B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-18C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-18D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-18F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-19A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-19B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-19C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-19D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-19F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-20A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-20B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-20C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-20D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-20F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-21A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-21B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-21C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-21D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-21F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-22A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-22B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-22C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-22D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-22F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-23A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-23B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-23C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-23D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-23F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-24A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-24B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-24C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-24D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-24F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-25A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-25B	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-25C	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)
L2235695-25G	Plastic 250ml HNO3 preserved	D	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2235695-25H	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-25J	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-26A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-26B	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-26C	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)
L2235695-26G	Metals Only-Glass 60mL/2oz unpreserved	D	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2235695-26H	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-26J	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-27A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235695-27B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-27C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-27D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235695-27F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235695-28A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-28B	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)

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Project Number: 200.00135.006

Serial_No:07112211:03

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Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: PHILADELPHIA REFINERY
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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18590

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date: _____ Time: _____

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hlcoglobal.com

Date Rec'd in Lab: 7/6/22

ALPHA Job #: L2235695

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Reg Program: _____ Criteria: _____

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5	ANALYSIS													
		Date	Time				1	2	3	4	5	6	7	8	9	10				
35695-01	PB-953-01-SS01	7/5	0845	S	TS	✓														
-02	PB-833-02-SS01		0855			✓														
-03	PB-833-03-SS01		0900			✓														
-04	PB-833-04-SS01		0905			✓														
-05	PB-833-05-SS01		0910			✓														
-06	PB-833-06-SS01		0920			✓														
-07	PB-833-07-SS01		0930			✓														
-08	PB-833-08-SS01		0940			✓														
-09	PB-833-09-SS01		0945			✓														
-10	PB-833-10-SS01		0955			✓														

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35695-01	PB-953-01-SS01	7/5	0845	S	TS
-02	PB-833-02-SS01		0855		
-03	PB-833-03-SS01		0900		
-04	PB-833-04-SS01		0905		
-05	PB-833-05-SS01		0910		
-06	PB-833-06-SS01		0920		
-07	PB-833-07-SS01		0930		
-08	PB-833-08-SS01		0940		
-09	PB-833-09-SS01		0945		
-10	PB-833-10-SS01		0955		

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 1615	<i>[Signature]</i>	7/5/22 1615
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1800
<i>[Signature]</i>	7/5/22 2200	<i>[Signature]</i>	7/5/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

[Handwritten notes and signatures at bottom of page]

CHAIN OF CUSTODY

PAGE **23**



Westborough, MA
TEL: 508-898-9229
FAX: 508-898-9193

Mansfield, MA
TEL: 508-832-5300
FAX: 508-832-3258

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Fax:
Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hfcglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35695-11	PB-833-11-5501	7/5	1000	S	TS
-12	PB-833-12-5501		1010		
-13	PB-833-13-5501		1020		
-14	PB-833-14-5501		1030		
-15	PB-833-15-5501		1040		
-16	PB-833-16-5501		1050		
-17	PB-836-01-5501		1230		
-18	PB-836-02-5501		1240		
-19	PB-836-03-5501		1250		
-20	PB-836-04-5501		1300		

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date: _____ Time: _____

Date Rec'd in Lab: **7/16/22**

ALPHA Job #: **L2235695**

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3582

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

ANALYTE	1-5	3-5																	
PADEP SHORTLIST	✓	✓																	
PADEP SHORTLIST	✓	✓																	

SAMPLE HANDLING

Filtration
 Done
 Not Needed

Lab to do Preservation
 Lab to do (Please specify below)

TOTAL # BOTTLES

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1815
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1815
<i>[Signature]</i>	7/5/22 2100	<i>[Signature]</i>	7/5/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and forward time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 3 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date: _____ Time: _____

Westborough, MA Mansfield, MA
 TEL: 508-898-9320 TEL: 508-822-5300
 FAX: 508-898-9183 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcglobal.com

Date Rec'd in Lab: 7/16/22

ALPHA Job #: L2235695

Report Information Data Deliverables

FAX EMAIL
 ADEL Add'l Deliverables

Billing Information

Same as Client info PD #: 3562

Regulatory Requirements/Report Limits

State/Reg Program: _____ Criteria: _____

ANALYSIS

PADEP Shortlist 1-5	PADEP Shortlist 3-5	VOC PORTION OF SL1-5																	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35695-21	PB-836-05-5501	7/5	1330	S	TS
-22	PB-836-06-5501		1340	S	
-23	PB-836-07-5501		1350	S	
-24	PB-836-08-5501		1400	S	
-25	FB-070522-4		1410	W	
-26	FB-070522-5		1420	W	
-27	DUP-30		-	S	
-28	TB-076522		-	W	

Container Type	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[Signature]	7/5 1415	[Signature]	7/5/22 1615
[Signature]	7/5/22 1715	[Signature]	7/5 2218
[Signature]	7/5/22 2100	[Signature]	7/5/22 2230

Please print clearly, legibly and completely. Samples can not be tagged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

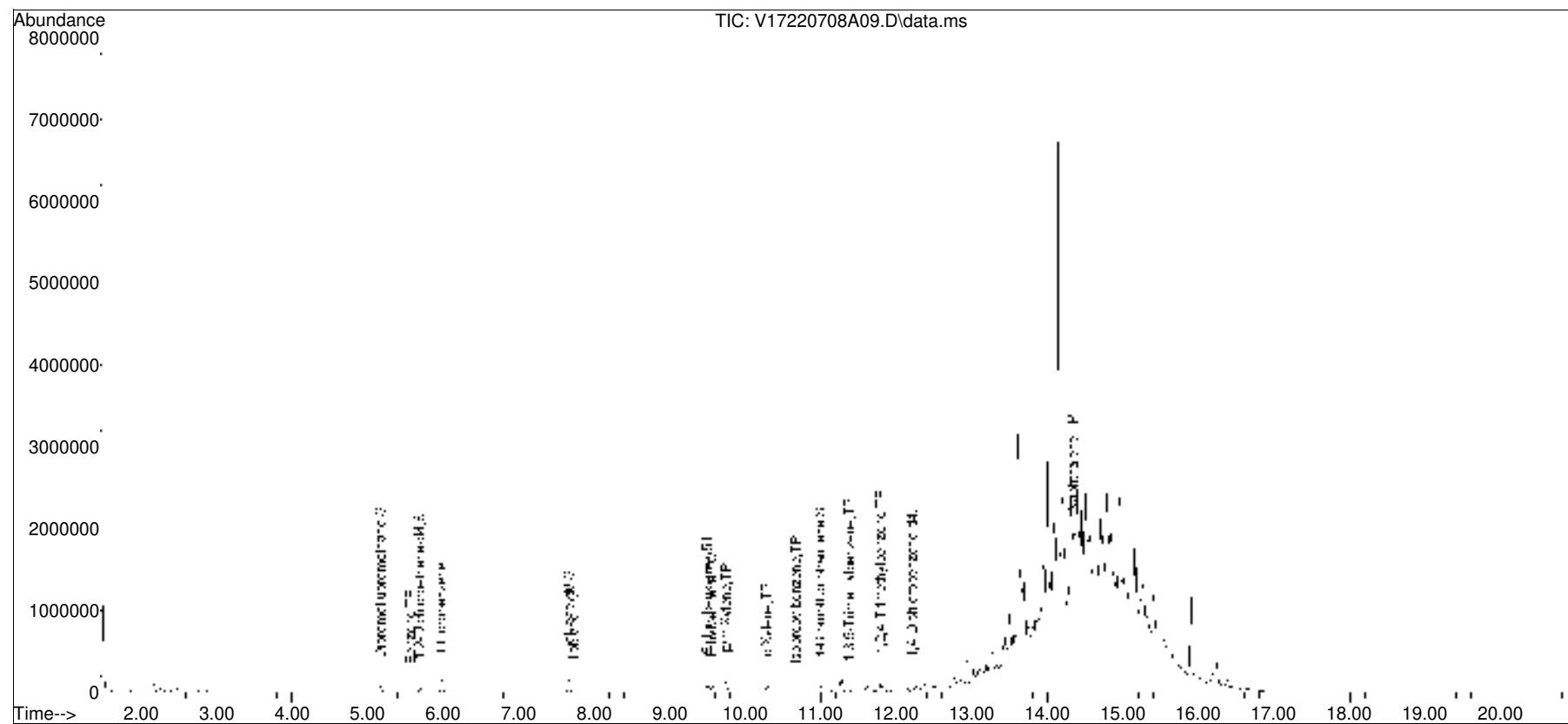
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220708A\
 Data File : V17220708A09.D
 Acq On : 08 Jul 2022 11:07 am
 Operator : VOA117:MKS
 Sample : 12235695-02,31,4.46,5,,b,r2f
 Misc : WG1660468,ICAL19049
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 08 12:41:55 2022
 Quant Method : I:\VOLATILES\VOA117\2022\220708A\V117_220526N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri May 27 14:20:04 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V17220708A02.D•

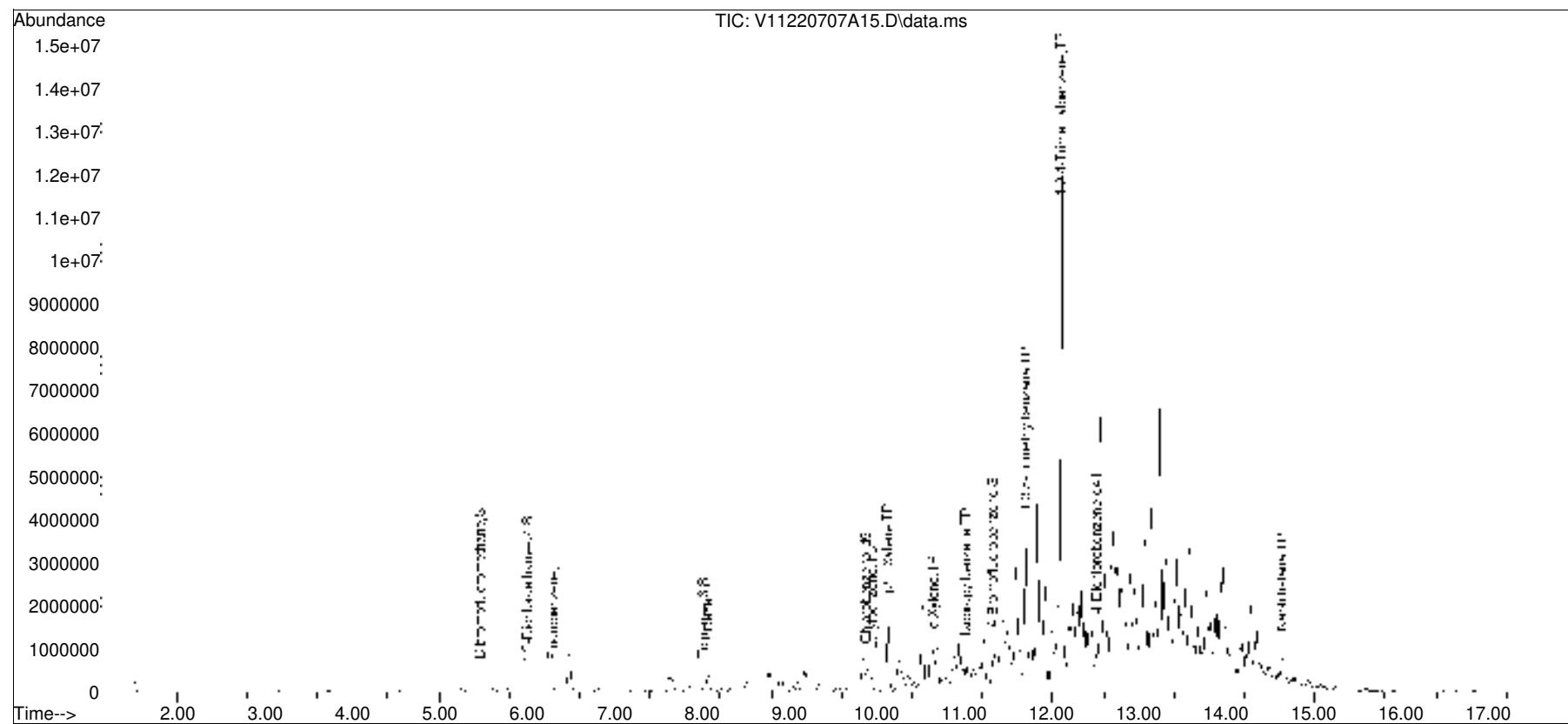


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220707A\
Data File : V11220707A15.D
Acq On : 07 Jul 2022 02:36 pm
Operator : VOA111:MKS
Sample : L2235695-13,31,6.05,5,,C,R2F
Misc : WG1660068,ICAL19072
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 07 15:02:14 2022
Quant Method : I:\VOLATILES\VOA111\2022\220707A\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07A\V11220707A01.D•

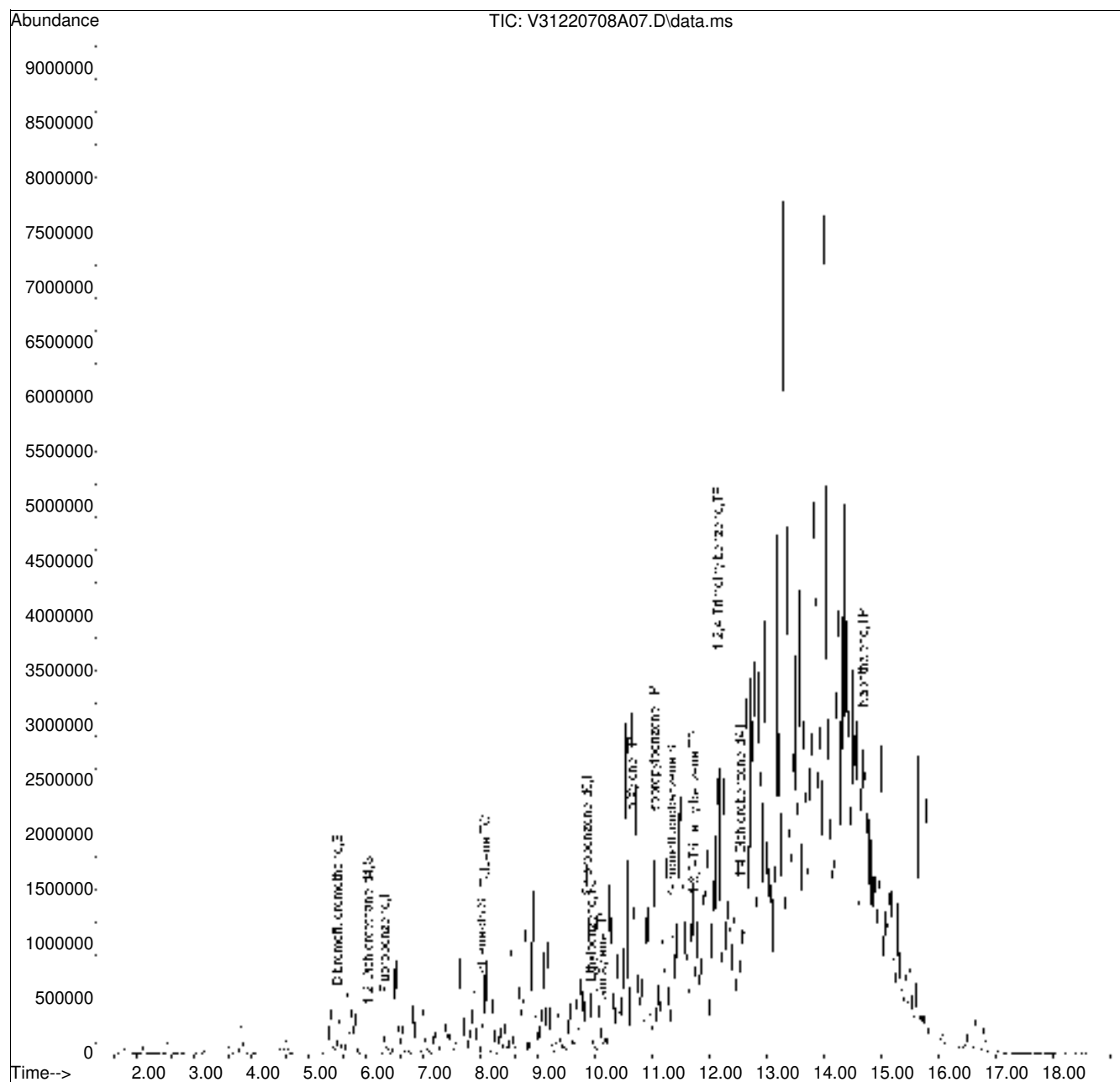


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A07.D
 Acq On : 08 Jul 2022 09:54 am
 Operator : VOA131:MKS
 Sample : 12235695-19,31,3.55,5,,b,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 08 12:22:59 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•

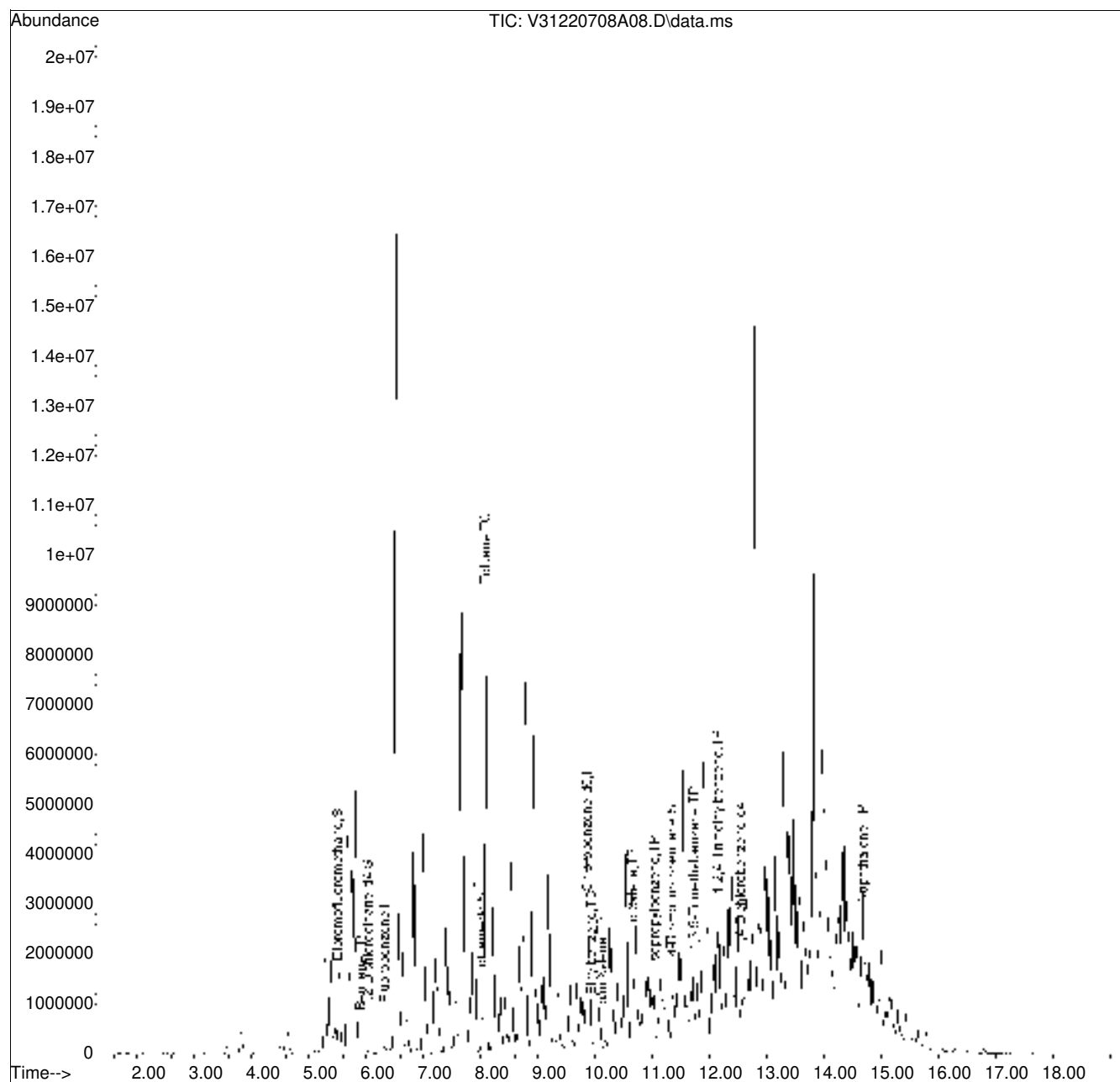


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A08.D
 Acq On : 08 Jul 2022 10:17 am
 Operator : VOA131:MKS
 Sample : 12235695-21,31,3.97,5,,b,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 08 12:23:07 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•





ANALYTICAL REPORT

Lab Number:	L2235860
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/15/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235860-01	PB-822-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:30	07/06/22
L2235860-02	PB-822-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:40	07/06/22
L2235860-03	PB-822-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:50	07/06/22
L2235860-04	PB-822-17-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:00	07/06/22
L2235860-05	PB-822-18-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:10	07/06/22
L2235860-06	PB-822-19-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:20	07/06/22
L2235860-07	PB-822-20-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:30	07/06/22
L2235860-08	DUP-31	SOIL	PHILADELPHIA, PA	07/06/22 00:00	07/06/22
L2235860-09	PB-824-01-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:00	07/06/22
L2235860-10	PB-824-02-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:10	07/06/22
L2235860-11	PB-824-03-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:20	07/06/22
L2235860-12	PB-824-04-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:30	07/06/22
L2235860-13	PB-824-05-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:40	07/06/22
L2235860-14	PB-824-06-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:50	07/06/22
L2235860-15	PB-824-07-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:00	07/06/22
L2235860-16	PB-824-08-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:10	07/06/22
L2235860-17	PB-824-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:20	07/06/22
L2235860-18	PB-824-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:30	07/06/22
L2235860-19	PB-824-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:40	07/06/22
L2235860-20	PB-824-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:50	07/06/22
L2235860-21	PB-824-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:00	07/06/22
L2235860-22	PB-824-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:10	07/06/22
L2235860-23	PB-824-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:20	07/06/22
L2235860-24	PB-824-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:30	07/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235860-25	FB-070622-1	WATER	PHILADELPHIA, PA	07/06/22 14:00	07/06/22
L2235860-26	FB-070622-2	WATER	PHILADELPHIA, PA	07/06/22 14:05	07/06/22
L2235860-27	FB-070622-3	WATER	PHILADELPHIA, PA	07/06/22 14:10	07/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Case Narrative (continued)

Report Revision

July 15, 2022: This report includes the results of the Microextractables analysis performed on L2235860-25, -26, and -27. In addition, the Volatile Organics analyte list has been amended on L2235860-25, -26, and -27 to remove 1,2-Dibromoethane.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235860-08 through -14 and -16 through -24: The sample was received in an inappropriate container for the PAHs analysis. At the client's request, the PAHs analysis was canceled.

L2235860-15: A sample identified as "PB-824-07-SS01" for PAHs analysis was listed on the Chain of Custody, but not received. This was verified by the client.

Volatile Organics


L2235860-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2235860-01D: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 07/15/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 05:59
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.016	J	mg/kg	0.027	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.12		mg/kg	0.054	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	1.7		mg/kg	0.054	0.0077	1
p/m-Xylene	3.7		mg/kg	0.11	0.030	1
o-Xylene	5.0		mg/kg	0.054	0.016	1
Xylenes, Total	8.7		mg/kg	0.054	0.016	1
Isopropylbenzene	0.42		mg/kg	0.054	0.0060	1
1,3,5-Trimethylbenzene	8.5		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	143	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01 D
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:48
 Analyst: LAC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	25.		mg/kg	0.54	0.091	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 06:25
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0011		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0057		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0090		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.064		mg/kg	0.0021	0.00058	1
o-Xylene	0.033		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.097		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0030		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.049		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:24
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:53
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:22
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:51
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:19
 Analyst: LAC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00024	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 15:52
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 09:39
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 15:59
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:02
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 16:06
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:25
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-07 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 09:16
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-27 Batch: WG1660208-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660382-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1660396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660398-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/13/22 14:45
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-27 Batch: WG1662273-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-07 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-27 Batch: WG1660208-3 WG1660208-4								
Methyl tert butyl ether	110		110		63-130	0		20
Benzene	97		98		70-130	1		20
1,2-Dichloroethane	120		120		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	113		114		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	108		111		70-130
Dibromofluoromethane	104		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660382-3 WG1660382-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1660396-3 WG1660396-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660398-3 WG1660398-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-27 Batch: WG1662273-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01 D
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 15:42
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.4		mg/kg	0.98	0.12	5
Fluorene	4.9		mg/kg	0.98	0.095	5
Phenanthrene	14.		mg/kg	0.59	0.12	5
Anthracene	1.1		mg/kg	0.59	0.19	5
Pyrene	0.58	J	mg/kg	0.59	0.098	5
Benzo(a)anthracene	ND		mg/kg	0.59	0.11	5
Chrysene	0.20	J	mg/kg	0.59	0.10	5
Benzo(b)fluoranthene	ND		mg/kg	0.59	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.78	0.24	5
Benzo(ghi)perylene	ND		mg/kg	0.78	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	149	Q	23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	82		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 17:32
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 17:56
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 18:20
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.028	J	mg/kg	0.19	0.019	1
Phenanthrene	0.071	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 18:44
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	70		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 19:08
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 19:32
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:24
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	82		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:40
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.05	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.06		ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.07	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	81		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:55
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	78		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 14:13
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1659229-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/08/22 12:06
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-27 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1659229-2 WG1659229-3								
Naphthalene	52		63		40-140	19		50
Fluorene	61		66		40-140	8		50
Phenanthrene	54		60		40-140	11		50
Anthracene	57		63		40-140	10		50
Pyrene	59		64		35-142	8		50
Benzo(a)anthracene	62		68		40-140	9		50
Chrysene	61		66		40-140	8		50
Benzo(b)fluoranthene	71		76		40-140	7		50
Benzo(a)pyrene	72		77		40-140	7		50
Benzo(ghi)perylene	58		63		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	50		59		23-120
2-Fluorobiphenyl	60		70		30-120
4-Terphenyl-d14	71		75		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-27 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01

Date Collected: 07/06/22 09:30

Client ID: PB-822-14-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.6		mg/kg	2.29	0.123	1	07/07/22 11:50	07/08/22 09:05	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.75		mg/kg	2.34	0.126	1	07/07/22 11:50	07/08/22 09:10	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03

Date Collected: 07/06/22 09:50

Client ID: PB-822-16-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.6		mg/kg	2.28	0.122	1	07/07/22 11:50	07/08/22 09:14	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04

Date Collected: 07/06/22 10:00

Client ID: PB-822-17-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.91		mg/kg	2.30	0.123	1	07/07/22 11:50	07/08/22 09:19	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05

Date Collected: 07/06/22 10:10

Client ID: PB-822-18-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.52		mg/kg	2.33	0.125	1	07/07/22 11:50	07/08/22 09:23	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06

Date Collected: 07/06/22 10:20

Client ID: PB-822-19-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.65		mg/kg	2.28	0.122	1	07/07/22 11:50	07/08/22 09:28	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07

Date Collected: 07/06/22 10:30

Client ID: PB-822-20-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.42		mg/kg	2.25	0.121	1	07/07/22 11:50	07/08/22 09:32	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 09:51	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26

Date Collected: 07/06/22 14:05

Client ID: FB-070622-2

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 10:01	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27

Date Collected: 07/06/22 14:10

Client ID: FB-070622-3

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 10:06	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1659924-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/07/22 11:50	07/08/22 08:01	1,6010D	NB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 25-27 Batch: WG1659971-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 09:42	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1659924-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 25-27 Batch: WG1659971-2								
Lead, Total	107		-		80-120	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1659924-3 QC Sample: L2235017-01 Client ID: MS Sample												
Lead, Total	12.6	46.2	42.2	64	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 25-27 QC Batch ID: WG1659971-3 QC Sample: L2235860-25 Client ID: FB-070622-1												
Lead, Total	ND	530	529.5	100		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1659924-4 QC Sample: L2235017-01 Client ID: DUP Sample						
Lead, Total	12.6	11.7	mg/kg	7		20
Total Metals - Mansfield Lab Associated sample(s): 25-27 QC Batch ID: WG1659971-4 QC Sample: L2235860-25 Client ID: FB-070622-1						
Lead, Total	ND	ND	ug/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1659698-1 QC Sample: L2235860-01 Client ID: PB-822-14-SS01						
Solids, Total	82.8	82.9	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-01A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-01B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-01C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-01D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-01F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-02A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-02B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-02C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-02D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-02F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-03A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-03B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-03C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-03D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-03F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-04A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-04B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-04C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-04D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-04F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-05A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-05B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-05C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-05D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-05F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-06A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-06B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-06C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-06D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-06F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-07A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-07B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-07C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-07D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-07F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-08A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-08C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-08D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-09A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-09B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-09C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-09D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-10A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-10B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-10C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-10D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-11A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-11B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-11C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-11D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-12A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-12B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-12C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-12D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-13A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-13B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-13C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-13D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-14A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-14B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-14C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-14D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-15A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-15B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-15C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-16A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-16B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-16C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-16D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-17A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-17B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-17C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-17D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-18A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-18B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-18C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-18D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-19A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-19B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-19C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-19D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-20A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-20B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-20C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-20D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-21A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-21B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-21C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-21D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-22A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-22B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-22C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-22D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-23A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-23B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-23C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-23D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-24A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-24B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-24C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-24D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-25A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-25E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-25F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)
L2235860-26A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-26E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-26F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)
L2235860-27A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-27E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-27F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA
TEL: 508-898-8220
FAX: 508-898-5180

Mansfield, MA
TEL: 508-823-8300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard RUSH (ONLY IF PRE-APPROVED)

2-DAY

Due Date: _____ Time: _____

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-801-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcoglobal.com

Date Rec'd in Lab: 7/7/22

ALPHA Job #: L2235860

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: _____

Criteria: _____

ANALYSIS

Sample ID	Collection		Sample Matrix	Sampler's Initials	Short list 4	ANALYSIS													
	Date	Time				1	2	3	4	5	6	7	8	9	10				
35860-11	7/6/22	1120	S	ca	✓														
12		1130			✓														
13		1140			✓														
14		1150			✓														
15		1200			✓														
16		1210			✓														
17		1220			✓														
18		1230			✓														
19		1240			✓														
20		1250			✓														

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35860-11	PB-824-03-5501	7/6/22	1120	S	ca
12	PB-824-04-5501		1130		
13	PB-824-05-5501		1140		
14	PB-824-06-5501		1150		
15	PB-824-07-5501		1200		
16	PB-824-08-5501		1210		
17	PB-824-09-5501		1220		
18	PB-824-10-5501		1230		
19	PB-824-11-5501		1240		
20	PB-824-12-5501		1250		

Container Type	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/6/22	ST-AAL	7/11/22 1430
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/14/22 310
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/7/22 02:25

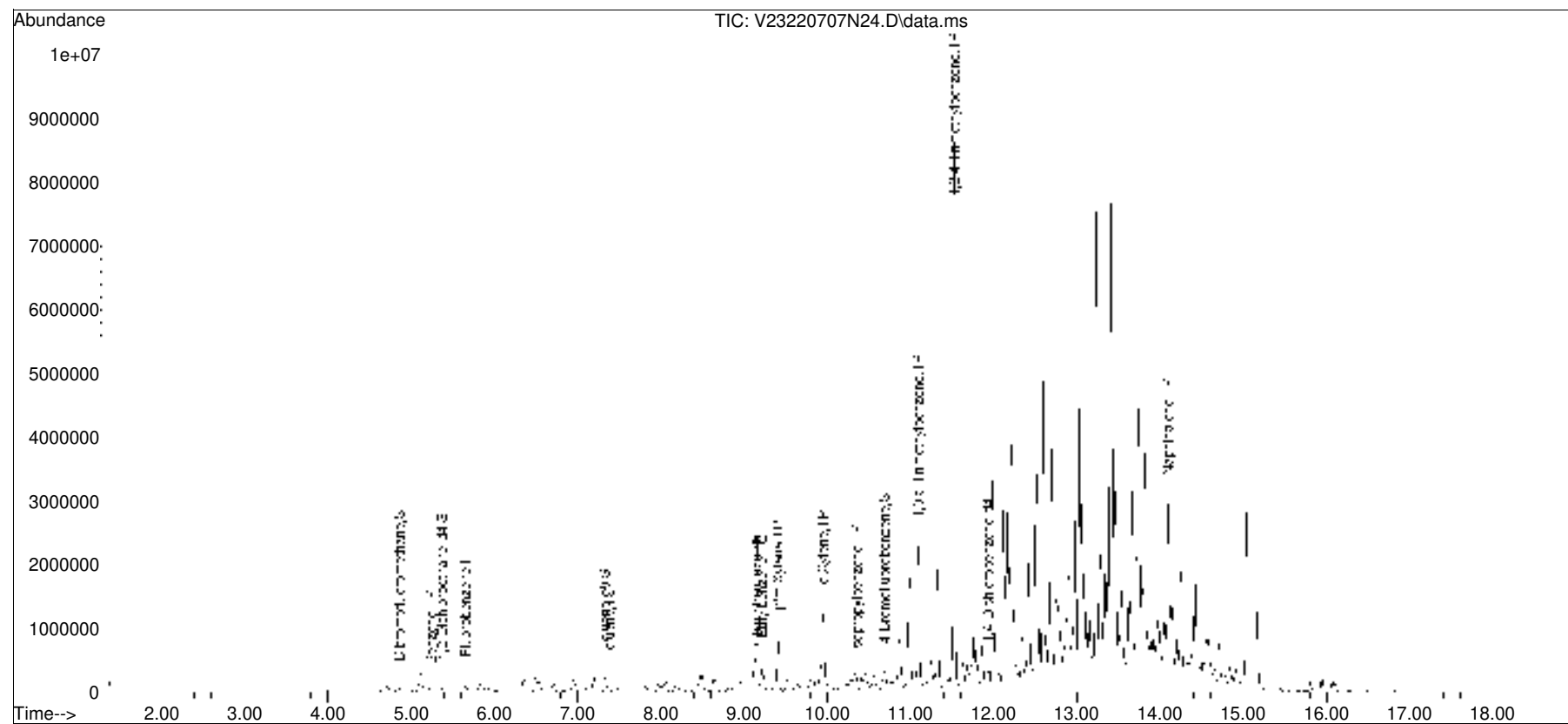
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples analyzed are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220707N\
Data File : V23220707N24.D
Acq On : 08 Jul 2022 05:59 am
Operator : VOA123:MKS
Sample : 12235860-01,31h,6.83,5,0.100,,a,r1b
Misc : WG1660398,ICAL19133
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 06:51:56 2022
Quant Method : I:\VOLATILES\VOA123\2022\220707N\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V23220707N01.D•





ANALYTICAL REPORT

Lab Number:	L2235873
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/08/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235873-01	PB-836-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:30	07/06/22
L2235873-02	PB-836-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:40	07/06/22
L2235873-03	PB-836-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:50	07/06/22
L2235873-04	PB-836-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:00	07/06/22
L2235873-05	PB-836-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:10	07/06/22
L2235873-06	PB-836-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:20	07/06/22
L2235873-07	PB-836-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:30	07/06/22
L2235873-08	PB-835-01-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:30	07/06/22
L2235873-09	PB-835-02-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:40	07/06/22
L2235873-10	PB-835-03-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:50	07/06/22
L2235873-11	PB-835-04-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:00	07/06/22
L2235873-12	PB-835-05-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:10	07/06/22
L2235873-13	PB-835-06-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:20	07/06/22
L2235873-14	PB-835-07-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:30	07/06/22
L2235873-15	PB-835-08-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:40	07/06/22
L2235873-16	PB-835-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:50	07/06/22
L2235873-17	PB-835-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:00	07/06/22
L2235873-18	PB-835-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:10	07/06/22
L2235873-19	PB-835-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:20	07/06/22
L2235873-20	PB-835-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:30	07/06/22
L2235873-21	PB-835-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:35	07/06/22
L2235873-22	PB-835-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:40	07/06/22
L2235873-23	PB-835-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:45	07/06/22
L2235873-24	PB-835-17-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:50	07/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235873-25	PB-835-18-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:55	07/06/22
L2235873-26	DUP-35	SOIL	PHILADELPHIA, PA	07/06/22 00:00	07/06/22
L2235873-27	FB-070622-4	WATER	PHILADELPHIA, PA	07/06/22 14:10	07/06/22
L2235873-28	FB-070622-5	WATER	PHILADELPHIA, PA	07/06/22 14:20	07/06/22
L2235873-29	FB-070622-6	WATER	PHILADELPHIA, PA	07/06/22 14:30	07/06/22
L2235873-30	TB-070622	WATER	PHILADELPHIA, PA	07/06/22 00:00	07/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235873-26: The Client ID was specified by the client.

Volatile Organics

L2235873-10, -13, -14, and -15: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235873-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (173%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

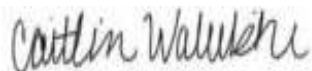
L2235873-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235873-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235873-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 07/08/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-01
 Client ID: PB-836-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:14
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0013		mg/kg	0.00059	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00064	1
Ethylbenzene	0.00024	J	mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00032	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00084	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00070	J	mg/kg	0.0024	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-02
 Client ID: PB-836-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 19:02
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00041	J	mg/kg	0.0025	0.00026	1
Benzene	0.011		mg/kg	0.00063	0.00021	1
Toluene	0.00092	J	mg/kg	0.0013	0.00069	1
Ethylbenzene	0.00086	J	mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0016		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0024	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-03
 Client ID: PB-836-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:12
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00036	J	mg/kg	0.0024	0.00025	1
Benzene	0.00034	J	mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00063	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-04
 Client ID: PB-836-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:40
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00043	J	mg/kg	0.0026	0.00026	1
Benzene	0.00029	J	mg/kg	0.00065	0.00022	1
Toluene	ND		mg/kg	0.0013	0.00071	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0011	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-05
 Client ID: PB-836-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:09
 Analyst: JC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	0.0016		mg/kg	0.00088	0.00029	1
Toluene	ND		mg/kg	0.0018	0.00095	1
Ethylbenzene	0.0010	J	mg/kg	0.0018	0.00025	1
Isopropylbenzene	0.0014	J	mg/kg	0.0018	0.00019	1
1,3,5-Trimethylbenzene	0.0068		mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.0079		mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-06
 Client ID: PB-836-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:37
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	0.00032	J	mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.00016	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-07
 Client ID: PB-836-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:05
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:34
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.00014	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-09
 Client ID: PB-835-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 23:32
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0010	0.00058	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10
 Client ID: PB-835-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:29
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0098	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	0.014	J	mg/kg	0.059	0.0084	1
Isopropylbenzene	1.1		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-11
 Client ID: PB-835-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 23:56
 Analyst: MKS
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.00029	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:52
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.096	0.0097	1
Benzene	0.31		mg/kg	0.024	0.0080	1
Toluene	ND		mg/kg	0.048	0.026	1
Ethylbenzene	1.5		mg/kg	0.048	0.0068	1
Isopropylbenzene	2.4		mg/kg	0.048	0.0053	1
1,3,5-Trimethylbenzene	2.6		mg/kg	0.096	0.0093	1
1,2,4-Trimethylbenzene	8.3		mg/kg	0.096	0.016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-13
 Client ID: PB-835-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:16
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	0.20		mg/kg	0.060	0.0085	1
Isopropylbenzene	1.2		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.24		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-14
 Client ID: PB-835-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:39
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.063	0.034	1
Ethylbenzene	ND		mg/kg	0.063	0.0089	1
Isopropylbenzene	1.1		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-15
 Client ID: PB-835-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:03
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0096	1
Toluene	ND		mg/kg	0.058	0.031	1
Ethylbenzene	ND		mg/kg	0.058	0.0082	1
Isopropylbenzene	0.0084	J	mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-16
 Client ID: PB-835-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 00:19
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00057	J	mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-17
 Client ID: PB-835-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:26
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.011	J	mg/kg	0.028	0.0094	1
Toluene	ND		mg/kg	0.056	0.031	1
Ethylbenzene	0.57		mg/kg	0.056	0.0080	1
Isopropylbenzene	0.72		mg/kg	0.056	0.0062	1
1,3,5-Trimethylbenzene	2.8		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	9.4		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-18
 Client ID: PB-835-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 00:42
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00028	J	mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	0.00023	J	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.00098	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-19
 Client ID: PB-835-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:06
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00022	J	mg/kg	0.0021	0.00021	1
Benzene	0.0010		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.00016	J	mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-20
 Client ID: PB-835-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 12:19
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-21
 Client ID: PB-835-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:35
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:04
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00053	J	mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-22
 Client ID: PB-835-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:30
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00080	0.00027	1
Toluene	ND		mg/kg	0.0016	0.00087	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-23
 Client ID: PB-835-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:45
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:56
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-24
 Client ID: PB-835-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:22
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00025	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-25
 Client ID: PB-835-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:55
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:48
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-26
 Client ID: DUP-35
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 04:14
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-27
 Client ID: FB-070622-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:13
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-28
 Client ID: FB-070622-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:38
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-29
 Client ID: FB-070622-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:04
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-30
 Client ID: TB-070622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:29
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-08 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:47
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 27-30 Batch: WG1660225-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	116		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21-26 Batch: WG1660396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,11,16,18-19 Batch: WG1660426-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10,12-15,17 Batch: WG1660428-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 11:50
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 20 Batch: WG1660514-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-08 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
Toluene	110		108		70-130	2		30
Ethylbenzene	109		107		70-130	2		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 27-30 Batch: WG1660225-3 WG1660225-4								
Methyl tert butyl ether	85		89		63-130	5		20
Benzene	100		100		70-130	0		20
Toluene	98		95		70-130	3		20
Ethylbenzene	96		97		70-130	1		20
Isopropylbenzene	90		93		70-130	3		20
1,3,5-Trimethylbenzene	90		93		64-130	3		20
1,2,4-Trimethylbenzene	88		92		70-130	4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		92		70-130
Toluene-d8	96		93		70-130
4-Bromofluorobenzene	90		87		70-130
Dibromofluoromethane	105		107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21-26 Batch: WG1660396-3 WG1660396-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
Toluene	97		95		70-130	2		30
Ethylbenzene	100		98		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,11,16,18-19 Batch: WG1660426-3 WG1660426-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
Toluene	93		94		70-130	1		30
Ethylbenzene	93		93		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10,12-15,17 Batch: WG1660428-3 WG1660428-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
Toluene	93		94		70-130	1		30
Ethylbenzene	93		93		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 20 Batch: WG1660514-3 WG1660514-4								
Methyl tert butyl ether	78		80		66-130	3		30
Benzene	89		90		70-130	1		30
Toluene	87		89		70-130	2		30
Ethylbenzene	87		88		70-130	1		30
Isopropylbenzene	86		86		70-130	0		30
1,3,5-Trimethylbenzene	87		87		70-130	0		30
1,2,4-Trimethylbenzene	87		86		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	89		88		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-01
 Client ID: PB-836-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:52
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.55		mg/kg	0.19	0.023	1
Fluorene	0.22		mg/kg	0.19	0.019	1
Phenanthrene	0.97		mg/kg	0.12	0.023	1
Anthracene	0.32		mg/kg	0.12	0.037	1
Pyrene	1.1		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.66		mg/kg	0.12	0.022	1
Chrysene	1.3		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	1.3		mg/kg	0.12	0.032	1
Benzo(a)pyrene	1.7		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	1.0		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-02
 Client ID: PB-836-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:23
 Analyst: IM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.13	0.026	1
Anthracene	ND		mg/kg	0.13	0.041	1
Pyrene	ND		mg/kg	0.13	0.021	1
Benzo(a)anthracene	0.044	J	mg/kg	0.13	0.024	1
Chrysene	0.15		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	0.068	J	mg/kg	0.13	0.036	1
Benzo(a)pyrene	0.089	J	mg/kg	0.17	0.052	1
Benzo(ghi)perylene	0.070	J	mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	56		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-03
 Client ID: PB-836-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:53
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-04
 Client ID: PB-836-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 00:16
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-05
 Client ID: PB-836-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:31
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	0.074	J	mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.13		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.082	J	mg/kg	0.12	0.022	1
Chrysene	0.086	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.10	J	mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.089	J	mg/kg	0.15	0.047	1
Benzo(ghi)perylene	0.048	J	mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-06
 Client ID: PB-836-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:01
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-07
 Client ID: PB-836-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 00:39
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:53
 Analyst: IM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.19	0.023	1
Fluorene	0.050	J	mg/kg	0.19	0.018	1
Phenanthrene	0.12		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.15		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.13		mg/kg	0.11	0.021	1
Chrysene	0.12		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.22		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.18		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-09
 Client ID: PB-835-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:45
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.099	J	mg/kg	0.20	0.024	1
Fluorene	0.063	J	mg/kg	0.20	0.019	1
Phenanthrene	0.60		mg/kg	0.12	0.024	1
Anthracene	0.18		mg/kg	0.12	0.038	1
Pyrene	0.78		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.53		mg/kg	0.12	0.022	1
Chrysene	0.50		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.61		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.55		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.29		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	49		30-120
4-Terphenyl-d14	43		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10
 Client ID: PB-835-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:00
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.30		mg/kg	0.19	0.023	1
Fluorene	0.23		mg/kg	0.19	0.018	1
Phenanthrene	0.41		mg/kg	0.11	0.023	1
Anthracene	0.060	J	mg/kg	0.11	0.037	1
Pyrene	0.085	J	mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.036	J	mg/kg	0.11	0.021	1
Chrysene	0.036	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.043	J	mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-11
 Client ID: PB-835-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:30
 Analyst: IM
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.21		mg/kg	0.21	0.025	1
Fluorene	0.20	J	mg/kg	0.21	0.020	1
Phenanthrene	1.0		mg/kg	0.12	0.025	1
Anthracene	0.32		mg/kg	0.12	0.040	1
Pyrene	0.99		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.71		mg/kg	0.12	0.023	1
Chrysene	0.76		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	0.79		mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.66		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.32		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:08
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7	E	mg/kg	0.19	0.023	1
Fluorene	2.9		mg/kg	0.19	0.019	1
Phenanthrene	4.7		mg/kg	0.12	0.023	1
Anthracene	0.69		mg/kg	0.12	0.037	1
Pyrene	0.78		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.17		mg/kg	0.12	0.022	1
Chrysene	0.28		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.20		mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.17		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	0.10	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	86		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12 D
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 11:47
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	8.1		mg/kg	0.96	0.12	5



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-13
 Client ID: PB-835-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:15
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.30		mg/kg	0.20	0.024	1
Fluorene	0.50		mg/kg	0.20	0.019	1
Phenanthrene	1.0		mg/kg	0.12	0.024	1
Anthracene	0.12		mg/kg	0.12	0.038	1
Pyrene	0.10	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.023	J	mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-14
 Client ID: PB-835-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:31
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.20	0.024	1
Fluorene	0.20		mg/kg	0.20	0.019	1
Phenanthrene	0.35		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-15
 Client ID: PB-835-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 03:16
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	0.044	J	mg/kg	0.19	0.019	1
Phenanthrene	0.073	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-16
 Client ID: PB-835-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:08
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.068	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.15		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.14		mg/kg	0.11	0.021	1
Chrysene	0.13		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.21		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.20		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.090	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-17
 Client ID: PB-835-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:23
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.94		mg/kg	0.20	0.024	1
Fluorene	0.55		mg/kg	0.20	0.019	1
Phenanthrene	1.1		mg/kg	0.12	0.024	1
Anthracene	0.21		mg/kg	0.12	0.039	1
Pyrene	0.71		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.63		mg/kg	0.12	0.022	1
Chrysene	0.57		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.87		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.88		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.36		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	60		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-18
 Client ID: PB-835-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 03:38
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-19
 Client ID: PB-835-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:24
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-20
 Client ID: PB-835-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:01
 Analyst: IM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.095	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.14		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.11		mg/kg	0.11	0.021	1
Chrysene	0.10	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.15		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.14	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.065	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-21
 Client ID: PB-835-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:35
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:09
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	103		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-22
 Client ID: PB-835-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:46
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-23
 Client ID: PB-835-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:45
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:46
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-24
 Client ID: PB-835-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 12:10
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.039	J	mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	0.040	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.061	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.045	J	mg/kg	0.12	0.022	1
Chrysene	0.045	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.056	J	mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.050	J	mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.027	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-25
 Client ID: PB-835-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:55
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:20
 Analyst: SZ
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17	J	mg/kg	0.18	0.022	1
Fluorene	0.045	J	mg/kg	0.18	0.018	1
Phenanthrene	0.37		mg/kg	0.11	0.022	1
Anthracene	0.10	J	mg/kg	0.11	0.035	1
Pyrene	0.41		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.28		mg/kg	0.11	0.020	1
Chrysene	0.29		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.34		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.30		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.16		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-26
 Client ID: DUP-35
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:56
 Analyst: SZ
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	0.021	J	mg/kg	0.20	0.019	1
Phenanthrene	0.13		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.16		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.11	J	mg/kg	0.12	0.022	1
Chrysene	0.11	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.14		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.13	J	mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.075	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	93		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-27
 Client ID: FB-070622-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:12
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	84		15-120
4-Terphenyl-d14	93		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-28
 Client ID: FB-070622-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:27
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	83		15-120
4-Terphenyl-d14	91		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-29
 Client ID: FB-070622-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:43
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 12:06
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 27-29 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 22:02
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-20 Batch: WG1659815-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 23:09
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-26 Batch: WG1659873-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	99		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 27-29 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-20 Batch: WG1659815-2 WG1659815-3								
Naphthalene	64		59		40-140	8		50
Fluorene	71		64		40-140	10		50
Phenanthrene	61		56		40-140	9		50
Anthracene	65		60		40-140	8		50
Pyrene	66		60		35-142	10		50
Benzo(a)anthracene	71		67		40-140	6		50
Chrysene	68		64		40-140	6		50
Benzo(b)fluoranthene	79		73		40-140	8		50
Benzo(a)pyrene	80		74		40-140	8		50
Benzo(ghi)perylene	67		62		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	63		61		23-120
2-Fluorobiphenyl	71		68		30-120
4-Terphenyl-d14	78		72		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-26 Batch: WG1659873-2 WG1659873-3								
Naphthalene	94		85		40-140	10		50
Fluorene	108		98		40-140	10		50
Phenanthrene	95		85		40-140	11		50
Anthracene	101		91		40-140	10		50
Pyrene	103		93		35-142	10		50
Benzo(a)anthracene	111		102		40-140	8		50
Chrysene	109		99		40-140	10		50
Benzo(b)fluoranthene	121		115		40-140	5		50
Benzo(a)pyrene	124		114		40-140	8		50
Benzo(ghi)perylene	104		95		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	92		82		23-120
2-Fluorobiphenyl	105		97		30-120
4-Terphenyl-d14	118		107		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-01

Date Collected: 07/06/22 09:30

Client ID: PB-836-09-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-02

Client ID: PB-836-10-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-03

Date Collected: 07/06/22 09:50

Client ID: PB-836-11-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-04

Date Collected: 07/06/22 10:00

Client ID: PB-836-12-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-05

Date Collected: 07/06/22 10:10

Client ID: PB-836-13-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-06

Date Collected: 07/06/22 10:20

Client ID: PB-836-14-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-07

Date Collected: 07/06/22 10:30

Client ID: PB-836-15-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-09

Date Collected: 07/06/22 11:40

Client ID: PB-835-02-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10
 Client ID: PB-835-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-11

Date Collected: 07/06/22 12:00

Client ID: PB-835-04-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-12

Date Collected: 07/06/22 12:10

Client ID: PB-835-05-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-13

Client ID: PB-835-06-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:20

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-14

Client ID: PB-835-07-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-15

Date Collected: 07/06/22 12:40

Client ID: PB-835-08-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-16

Date Collected: 07/06/22 12:50

Client ID: PB-835-09-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-17

Date Collected: 07/06/22 13:00

Client ID: PB-835-10-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-18

Client ID: PB-835-11-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:10

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-19
 Client ID: PB-835-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-20
 Client ID: PB-835-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-21

Date Collected: 07/06/22 13:35

Client ID: PB-835-14-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-22

Date Collected: 07/06/22 13:40

Client ID: PB-835-15-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-23

Date Collected: 07/06/22 13:45

Client ID: PB-835-16-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-24

Date Collected: 07/06/22 13:50

Client ID: PB-835-17-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-25

Date Collected: 07/06/22 13:55

Client ID: PB-835-18-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.7		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-26

Client ID: DUP-35

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1659792-1 QC Sample: L2235873-01 Client ID: PB-836-09-SS01						
Solids, Total	86.3	86.9	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-26 QC Batch ID: WG1659802-1 QC Sample: L2235930-05 Client ID: DUP Sample						
Solids, Total	88.9	88.6	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-01A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-01B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-01C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-01D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-01E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-02A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-02B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-02C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-02D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-02E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-03A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-03B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-03C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-03D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-03E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-04A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-04B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-04C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-04D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-04E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-05A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-05B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-05C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-05D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-05E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-06A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-06B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-06C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-06D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-06E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-07A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-07B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-07C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-07D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-07E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-08A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-08B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-08C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-08D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-08E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-09A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-09B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-09C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-09D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-09E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-10A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-10B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-10C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-10D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-10E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-11A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-11B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-11C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-11D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-11E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-12A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-12B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-12C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-12D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-12E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-13A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-13B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-13C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-13D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-13E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-14A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-14B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-14C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-14D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-14E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-15A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-15B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-15C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-15D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-15E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-16A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-16B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-16C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-16D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-16E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-17A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-17B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-17C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-17D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-17E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-18A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-18B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-18C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-18D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-18E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-19A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-19B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-19C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-19D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-19E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-20A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-20B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-20C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-20D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-20E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-21A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-21B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-21C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-21D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-21E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-22A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-22B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-22C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-22D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-22E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-23A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-23B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-23C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-23D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-23E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-24A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-24B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-24C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-24D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-24E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-25A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-25B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-25C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-25D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-25E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-26A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-26B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-26C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-26D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-26E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-27A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-27B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-27C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-27D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-27E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-28A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-28E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-29A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-29E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-30A	Vial HCl preserved	B	NA		4.9	Y	Absent		PA-8260(14)
L2235873-30B	Vial HCl preserved	B	NA		4.9	Y	Absent		PA-8260(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

PADEP Short List Analytical Suites per Table III-5:

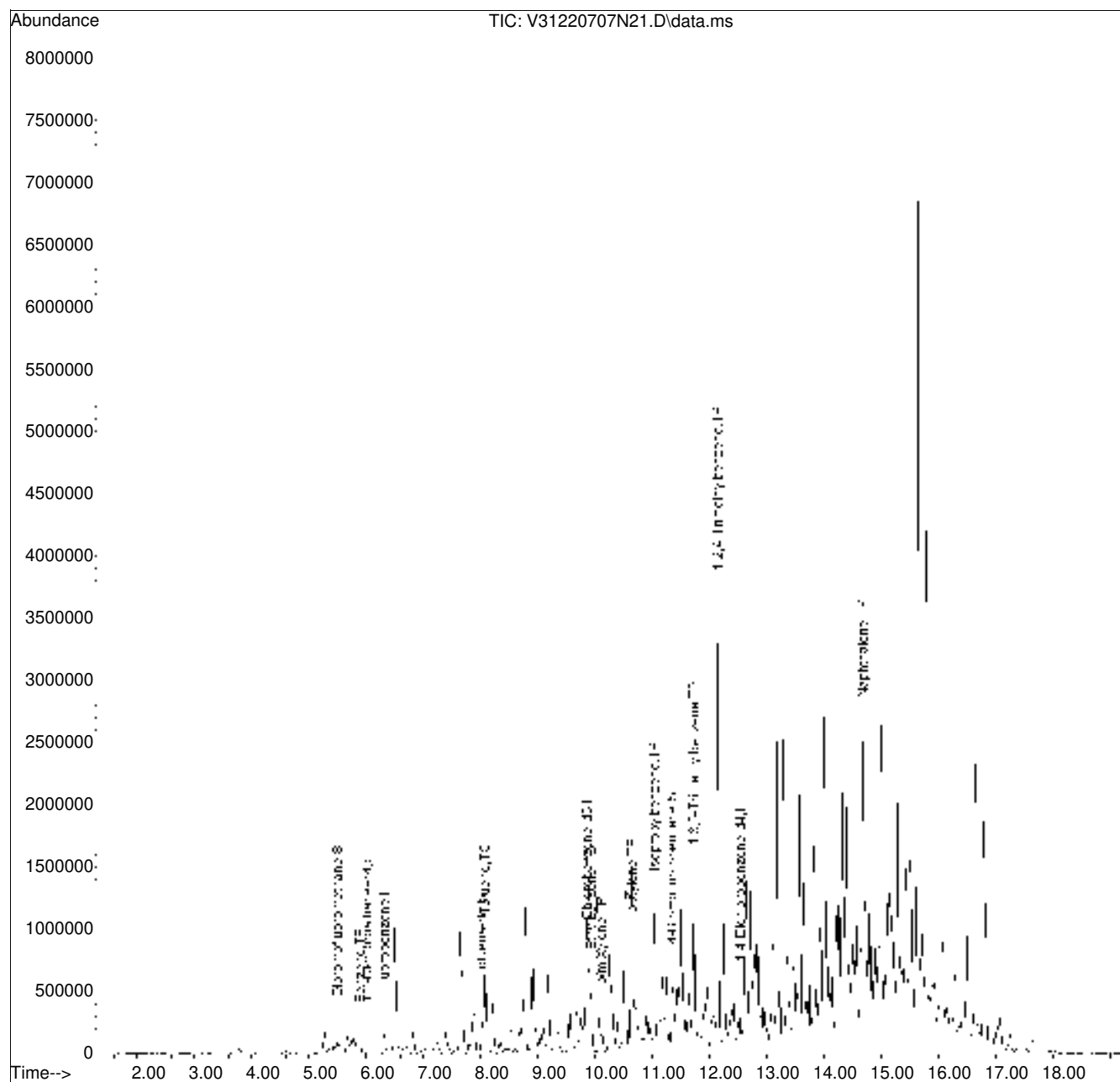
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
 Data File : V31220707N21.D
 Acq On : 08 Jul 2022 01:52 am
 Operator : VOA131:MKS
 Sample : 12235873-12,31h,7.24,5,0.100,,a,r1b
 Misc : WG1660428,ICAL19050
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 08 06:54:08 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

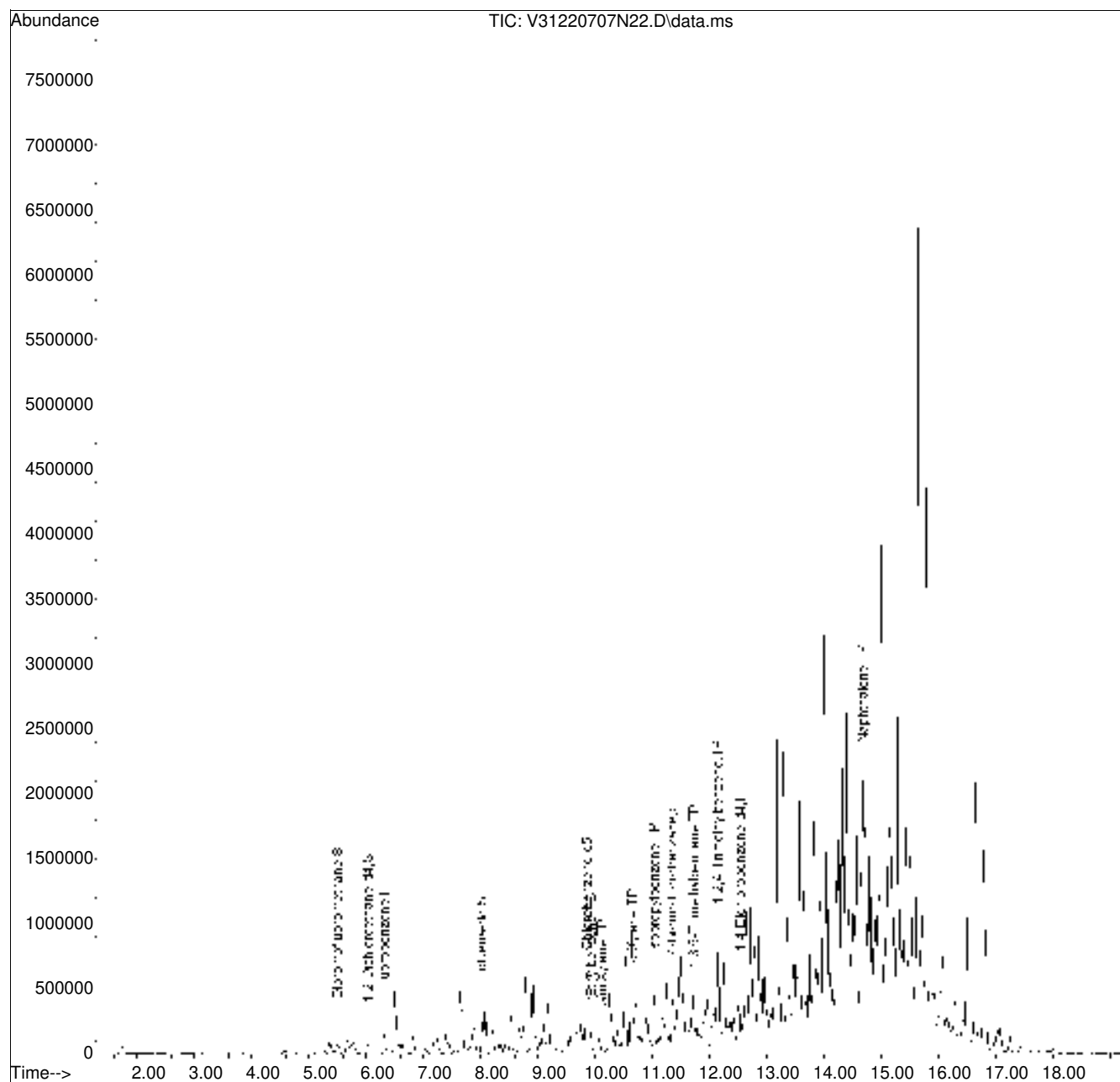


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N22.D
Acq On : 08 Jul 2022 02:16 am
Operator : VOA131:MKS
Sample : 12235873-13,31h,6.02,5,0.100,,a,r1b
Misc : WG1660428,ICAL19050
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 08 11:56:46 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

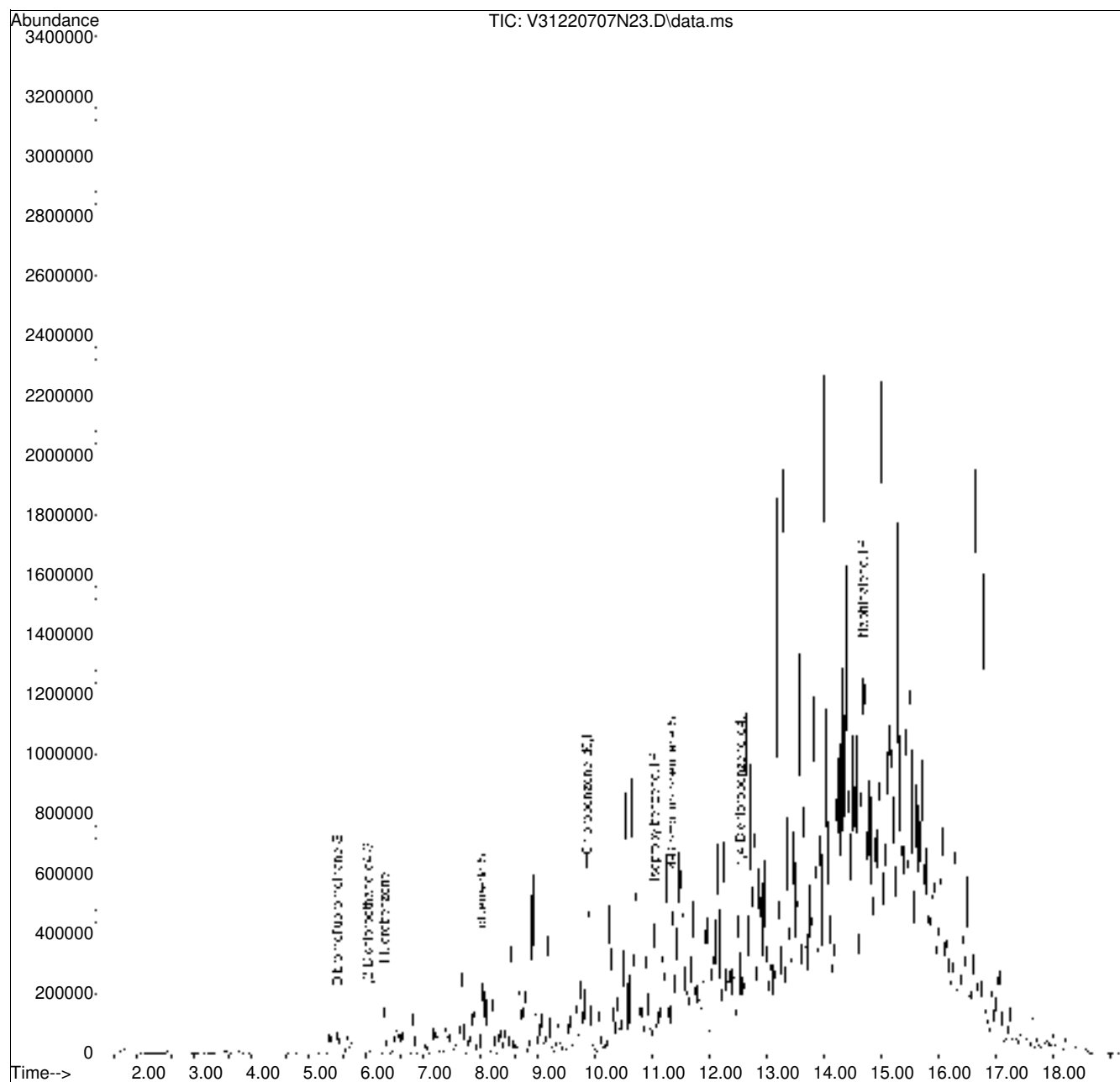


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N23.D
Acq On : 08 Jul 2022 02:39 am
Operator : VOA131:MKS
Sample : 12235873-14, 31h, 5.79, 5, 0.100,, a, r1b
Misc : WG1660428, ICAL19050
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 08 11:57:01 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

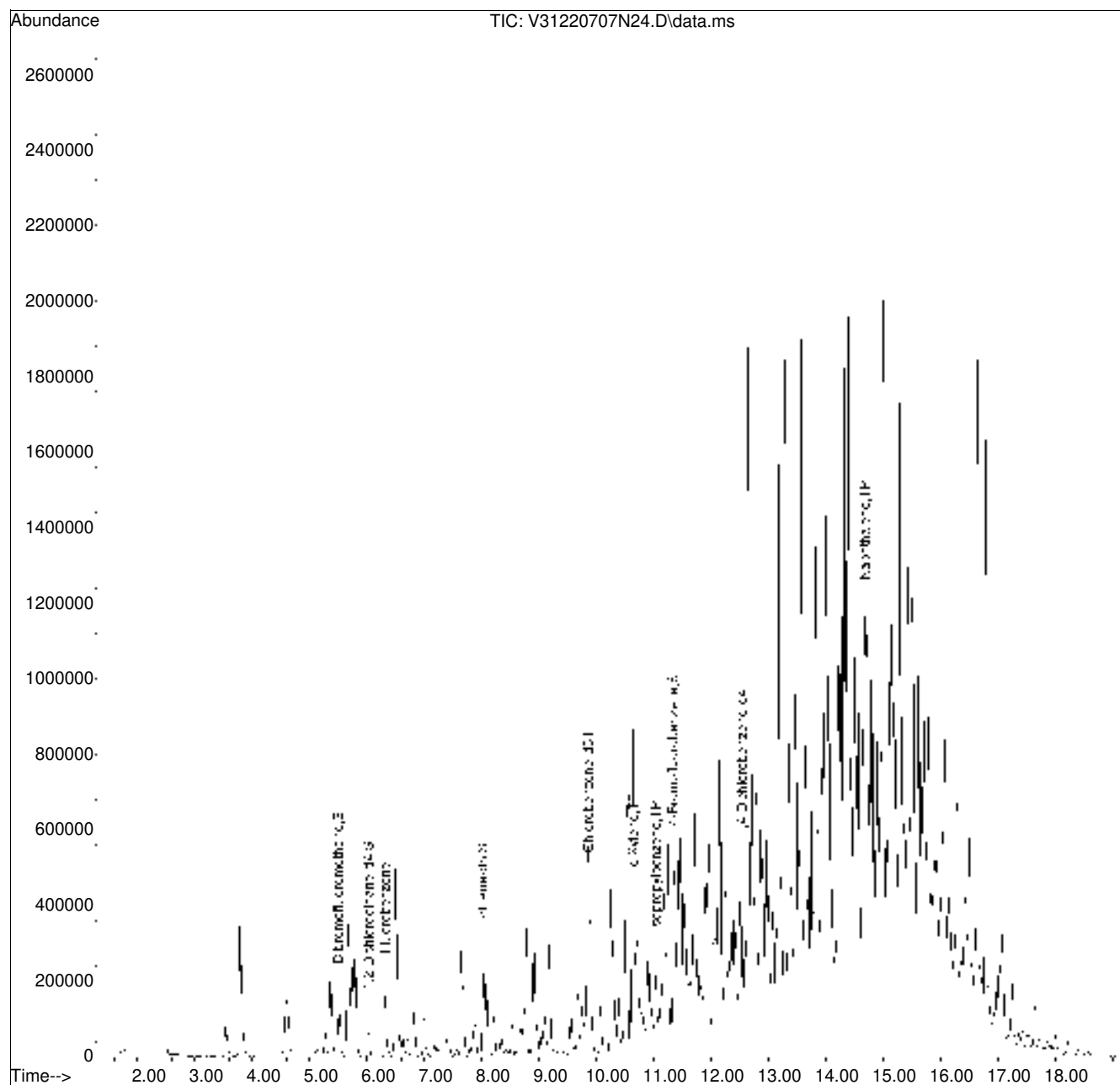


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
 Data File : V31220707N24.D
 Acq On : 08 Jul 2022 03:03 am
 Operator : VOA131:MKS
 Sample : 12235873-15,31h,6.09,5,0.100,,a,r1b
 Misc : WG1660428,ICAL19050
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 11:57:09 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•





ANALYTICAL REPORT

Lab Number:	L2236236
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/12/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236236-01	PB-824-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:00	07/07/22
L2236236-02	PB-824-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:10	07/07/22
L2236236-03	PB-824-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:20	07/07/22
L2236236-04	PB-824-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:30	07/07/22
L2236236-05	PB-824-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:40	07/07/22
L2236236-06	PB-824-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:50	07/07/22
L2236236-07	PB-824-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:00	07/07/22
L2236236-08	PB-824-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:10	07/07/22
L2236236-09	PB-824-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:20	07/07/22
L2236236-10	PB-824-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:30	07/07/22
L2236236-11	PB-824-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:40	07/07/22
L2236236-12	PB-824-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:50	07/07/22
L2236236-13	PB-824-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:00	07/07/22
L2236236-14	PB-824-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:10	07/07/22
L2236236-15	PB-824-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:20	07/07/22
L2236236-16	PB-824-16-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:30	07/07/22
L2236236-17	PB-824-17-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:40	07/07/22
L2236236-18	PB-824-18-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:50	07/07/22
L2236236-19	PB-824-19-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:00	07/07/22
L2236236-20	PB-824-20-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:10	07/07/22
L2236236-21	PB-824-21-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:20	07/07/22
L2236236-22	PB-824-22-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:30	07/07/22
L2236236-23	PB-824-23-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:40	07/07/22
L2236236-24	PB-824-24-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:50	07/07/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236236-25	PB-824-25-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:00	07/07/22
L2236236-26	PB-824-26-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:10	07/07/22
L2236236-27	FB-070722-1	WATER	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236236-28	FB-070722-2	WATER	PHILADELPHIA, PA	07/07/22 14:05	07/07/22
L2236236-29	FB-070722-3	WATER	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236236-30	DUP-34	SOIL	PHILADELPHIA, PA	07/07/22 00:00	07/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Case Narrative (continued)

Report Submission

July 12, 2022: This final report includes the results of all requested analyses.

July 11, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2236236-10, -11, -13, and -14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2236236-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (155%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

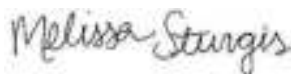
L2236236-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (157%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (182%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-24: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (180%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 07/12/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 13:53
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-02
 Client ID: PB-824-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 14:19
 Analyst: NLK
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
Toluene	ND		mg/kg	0.0012	0.00063	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-03
 Client ID: PB-824-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 14:45
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-04
 Client ID: PB-824-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 20:29
 Analyst: JC
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00051	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05
 Client ID: PB-824-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 20:01
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.00099	0.00054	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-06
 Client ID: PB-824-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 16:03
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-07
 Client ID: PB-824-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 19:33
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
Toluene	ND		mg/kg	0.00088	0.00048	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-08
 Client ID: PB-824-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 19:05
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00052	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-09
 Client ID: PB-824-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 18:36
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
Toluene	ND		mg/kg	0.00089	0.00048	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-10
 Client ID: PB-824-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 19:57
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0085	1
Toluene	ND		mg/kg	0.051	0.028	1
Ethylbenzene	0.0084	J	mg/kg	0.051	0.0072	1
Isopropylbenzene	0.11		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	0.071	J	mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	155	Q	70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-11
 Client ID: PB-824-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 09:39
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	ND		mg/kg	0.059	0.0084	1
Isopropylbenzene	0.027	J	mg/kg	0.059	0.0065	1
1,3,5-Trimethylbenzene	0.037	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.24		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-12
 Client ID: PB-824-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 09:13
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-13
 Client ID: PB-824-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:05
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.032	1
Ethylbenzene	0.016	J	mg/kg	0.060	0.0084	1
Isopropylbenzene	0.16		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.39		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.78		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	157	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-14
 Client ID: PB-824-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:31
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
Isopropylbenzene	0.076		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	0.045	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.29		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	182	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-15
 Client ID: PB-824-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:57
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-16
 Client ID: PB-824-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 12:45
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-17
 Client ID: PB-824-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 11:49
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.00016	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-18
 Client ID: PB-824-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 12:15
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-19
 Client ID: PB-824-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 12:41
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:07
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-21
 Client ID: PB-824-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:33
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:59
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-23
 Client ID: PB-824-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 14:25
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-24
 Client ID: PB-824-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 14:51
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
Toluene	ND		mg/kg	0.056	0.030	1
Ethylbenzene	0.50		mg/kg	0.056	0.0078	1
Isopropylbenzene	0.68		mg/kg	0.056	0.0060	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	6.9		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	180	Q	70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-25
 Client ID: PB-824-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 15:17
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 15:43
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-27
 Client ID: FB-070722-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-28
 Client ID: FB-070722-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-29
 Client ID: FB-070722-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-30
 Client ID: DUP-34
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 16:09
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:22
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 27-29 Batch: WG1660783-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 11:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,06 Batch: WG1661134-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/09/22 11:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10 Batch: WG1661142-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/10/22 16:43
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-05,07-09 Batch: WG1661196-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/10/22 08:32
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12,15,17-23,25-26,30 Batch: WG1661243-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/10/22 08:32
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11,13-14,24 Batch: WG1661245-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/12/22 12:19
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1661850-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 27-29 Batch: WG1660783-3 WG1660783-4								
Methyl tert butyl ether	88		89		63-130	1		20
Benzene	93		94		70-130	1		20
Toluene	90		90		70-130	0		20
Ethylbenzene	88		88		70-130	0		20
Isopropylbenzene	86		85		70-130	1		20
1,3,5-Trimethylbenzene	84		83		64-130	1		20
1,2,4-Trimethylbenzene	83		84		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		107		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	95		93		70-130
Dibromofluoromethane	105		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,06 Batch: WG1661134-3 WG1661134-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	99		98		70-130	1		30
Toluene	96		93		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
Isopropylbenzene	102		96		70-130	6		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		95		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	108		105		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10 Batch: WG1661142-3 WG1661142-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	99		98		70-130	1		30
Toluene	96		93		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
Isopropylbenzene	102		96		70-130	6		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		95		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		108		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	108		104		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-05,07-09 Batch: WG1661196-3 WG1661196-4								
Methyl tert butyl ether	107		108		66-130	1		30
Benzene	107		108		70-130	1		30
Toluene	102		102		70-130	0		30
Ethylbenzene	101		102		70-130	1		30
Isopropylbenzene	102		103		70-130	1		30
1,3,5-Trimethylbenzene	99		99		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	108		108		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 12,15,17-23,25-26,30 Batch: WG1661243-3 WG1661243-4								
Methyl tert butyl ether	95		94		66-130	1		30
Benzene	101		100		70-130	1		30
Toluene	99		99		70-130	0		30
Ethylbenzene	102		102		70-130	0		30
Isopropylbenzene	102		102		70-130	0		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	115		114		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11,13-14,24 Batch: WG1661245-3 WG1661245-4								
Methyl tert butyl ether	95		94		66-130	1		30
Benzene	101		100		70-130	1		30
Toluene	99		99		70-130	0		30
Ethylbenzene	102		102		70-130	0		30
Isopropylbenzene	102		102		70-130	0		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	115		114		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1661850-3 WG1661850-4								
Methyl tert butyl ether	94		91		66-130	3		30
Benzene	95		91		70-130	4		30
Toluene	89		85		70-130	5		30
Ethylbenzene	90		86		70-130	5		30
Isopropylbenzene	85		82		70-130	4		30
1,3,5-Trimethylbenzene	86		81		70-130	6		30
1,2,4-Trimethylbenzene	84		81		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		91		70-130
Toluene-d8	95		96		70-130
4-Bromofluorobenzene	84		83		70-130
Dibromofluoromethane	105		106		70-130

SEMIVOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:07
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	153	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-02
 Client ID: PB-824-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:30
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.17	0.021	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-03
 Client ID: PB-824-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:54
 Analyst: CMM
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.21	0.026	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	151	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-04
 Client ID: PB-824-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:17
 Analyst: CMM
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	160	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05
 Client ID: PB-824-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:40
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	156	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-06
 Client ID: PB-824-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:04
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	155	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-07
 Client ID: PB-824-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:27
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	150	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-08
 Client ID: PB-824-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:51
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-09
 Client ID: PB-824-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:14
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-10
 Client ID: PB-824-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:37
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.080	J	mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	144	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-11
 Client ID: PB-824-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:48
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.14	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-12
 Client ID: PB-824-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:11
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-13
 Client ID: PB-824-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:34
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.15	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	122	Q	23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-14
 Client ID: PB-824-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:58
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.11	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	74		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-15
 Client ID: PB-824-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:21
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-16
 Client ID: PB-824-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:44
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-17
 Client ID: PB-824-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:08
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	162	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-18
 Client ID: PB-824-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:31
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	152	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-19
 Client ID: PB-824-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:54
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:18
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	175	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-21
 Client ID: PB-824-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:44
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	94		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:06
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	91		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-23
 Client ID: PB-824-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:28
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-24
 Client ID: PB-824-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:51
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	1.8		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-25
 Client ID: PB-824-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:13
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:36
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.064	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	104		30-120
4-Terphenyl-d14	100		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-27
 Client ID: FB-070722-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 20:40
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
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Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	33		15-120
4-Terphenyl-d14	39	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-28
 Client ID: FB-070722-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 20:56
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	31		23-120
2-Fluorobiphenyl	32		15-120
4-Terphenyl-d14	37	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-29
 Client ID: FB-070722-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 21:12
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	34		15-120
4-Terphenyl-d14	41		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-30
 Client ID: DUP-34
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:58
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/12/22 11:59
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 27-29 Batch: WG1660313-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	26		23-120
2-Fluorobiphenyl	27		15-120
4-Terphenyl-d14	25	Q	41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/09/22 12:57
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-20 Batch: WG1660321-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	121	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/09/22 14:36
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-26,30 Batch: WG1660333-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	105		30-120
4-Terphenyl-d14	127	Q	18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 27-29 Batch: WG1660313-2 WG1660313-3								
Naphthalene	64		64		40-140	0		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	31		31		23-120
2-Fluorobiphenyl	31		32		15-120
4-Terphenyl-d14	35	Q	36	Q	41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-20 Batch: WG1660321-2 WG1660321-3								
Naphthalene	68		76		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	145	Q	23-120
2-Fluorobiphenyl	57		72		30-120
4-Terphenyl-d14	64		87		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-26,30 Batch: WG1660333-2 WG1660333-3								
Naphthalene	76		70		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	74		67		23-120
2-Fluorobiphenyl	87		79		30-120
4-Terphenyl-d14	102		90		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-02

Date Collected: 07/07/22 09:10

Client ID: PB-824-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-03

Date Collected: 07/07/22 09:20

Client ID: PB-824-03-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-04

Date Collected: 07/07/22 09:30

Client ID: PB-824-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05

Date Collected: 07/07/22 09:40

Client ID: PB-824-05-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-06
 Client ID: PB-824-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-07

Date Collected: 07/07/22 10:00

Client ID: PB-824-07-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-08

Client ID: PB-824-08-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-09
 Client ID: PB-824-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-10

Date Collected: 07/07/22 10:30

Client ID: PB-824-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-11

Date Collected: 07/07/22 10:40

Client ID: PB-824-11-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-12

Date Collected: 07/07/22 10:50

Client ID: PB-824-12-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-13

Date Collected: 07/07/22 11:00

Client ID: PB-824-13-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-14

Date Collected: 07/07/22 11:10

Client ID: PB-824-14-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-15

Date Collected: 07/07/22 11:20

Client ID: PB-824-15-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-16
 Client ID: PB-824-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-17

Date Collected: 07/07/22 11:40

Client ID: PB-824-17-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-18
 Client ID: PB-824-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-19

Date Collected: 07/07/22 12:00

Client ID: PB-824-19-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-21

Date Collected: 07/07/22 12:20

Client ID: PB-824-21-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-23

Date Collected: 07/07/22 12:40

Client ID: PB-824-23-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-24

Date Collected: 07/07/22 12:50

Client ID: PB-824-24-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-25

Client ID: PB-824-25-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-30

Date Collected: 07/07/22 00:00

Client ID: DUP-34

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1660328-1 QC Sample: L2236236-01 Client ID: PB-824-01-SS01						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-26,30 QC Batch ID: WG1660331-1 QC Sample: L2236254-01 Client ID: DUP Sample						
Solids, Total	85.2	80.5	%	6		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-01B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-01C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-01D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-01E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-02B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-02C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-02D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-02E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-03B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-03C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-03D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-03E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-04B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-04C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-04D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-04E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-05B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-05C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-05D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-05E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-06B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-06C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-06D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-06E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-07A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-07B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-07C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-07D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-07E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-08A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-08B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-08C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-08D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-08E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-09A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-09B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-09C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-09D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-09E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-10A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-10B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-10C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-10D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-10E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-11A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-11B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-11C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-11D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-11E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-12A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-12B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-12C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-12D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-12E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-13A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-13B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-13C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-13D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-13E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-14A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-14B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-14C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-14D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-14E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-15A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-15B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-15C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-15D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-15E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-16A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-16B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:07122215:29
Lab Number: L2236236
Report Date: 07/12/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-16C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-16D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-16E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-17A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-17B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-17C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-17D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-17E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-18A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-18B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-18C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-18D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-18E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-19A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-19B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-19C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-19D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-19E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-20A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-20B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-20C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-20D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-20E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-21A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-21B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-21C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-21D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-21E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-22A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-22B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-22C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-22D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-22E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-23A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-23B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-23C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-23D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-23E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-24A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-24B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-24C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-24D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-24E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-25A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-25B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-25C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-25D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-25E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-26A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-26B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-26C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-26D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-26E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-27A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-27B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-27C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-27D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-27E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-28A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-28E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-29A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-29E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-30A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-30B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-30C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-30D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-30E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY PAGE 1 OF 3



Westborough, MA
TEL: 508-890-9700
FAX: 508-890-9193

Mansfield, MA
TEL: 508-822-9000
FAX: 508-822-3284

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.006
Project Manager: William Schmidt
ALPHA Quote #: 18599

Turn-Around Time

Standard
 Rush (ONLY IF PRE-APPROVED)
Z-DAY
 Due Date: _____ Time: _____

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: **7/7/22** ALPHA Job #: **L2236236**

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client Info PO #: 3562
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS												Sample Specific Comments	TOTAL # BOTTLES
		Date	Time			1	2	3	4	5	6	7	8	9	10	11	12		
36236-01	PB-824-01-5501	7/7/22	900	S	an	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	02 PB-824-02-5501		910			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	03 PB-824-03-5501		920			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	04 PB-824-04-5501		930			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Time: 930	
	05 PB-824-05-5501		940			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Time: 940	
	06 PB-824-06-5501		950			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	07 PB-824-07-5501		1000			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	08 PB-824-08-5501		1010			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	09 PB-824-09-5501		1020			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	10 PB-824-10-5501		1030			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Short list 4

SAMPLE HANDLING

Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
36236-01	PB-824-01-5501	7/7/22	900	S	an
	02 PB-824-02-5501		910		
	03 PB-824-03-5501		920		
	04 PB-824-04-5501		930		
	05 PB-824-05-5501		940		
	06 PB-824-06-5501		950		
	07 PB-824-07-5501		1000		
	08 PB-824-08-5501		1010		
	09 PB-824-09-5501		1020		
	10 PB-824-10-5501		1030		

Container Type: - G - - - - -
 Preservative: - - - - -

Relinquished By: *[Signature]* Date/Time: **7/7/22**
 Received By: **STOR ADL** Date/Time: **7/7/22 145**
[Signature] Date/Time: **7/7/22**

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200 00135 006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date: Time:

Date Rec'd in Lab: 7/7/22

ALPHA Job #: 2236236

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Westborough, MA
 TEL: 508-896-9220
 FAX: 508-896-9193

Mansfield, MA
 TEL: 508-473-9300
 FAX: 508-422-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS												
		Date	Time			1	2	3	4	5	6	7	8	9	10			
Xo236-11	PB-824-11-5501	7/7/22	1040	S	CL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	PB-824-12-5501		1050			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13	PB-824-13-5501		1100			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
14	PB-824-14-5501		1110			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
15	PB-824-15-5501		1120			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
16	PB-824-16-5501		1150			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17	PB-824-17-5501		1140			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
18	PB-824-18-5501		1150			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
19	PB-824-19-5501		1200			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
20	PB-824-20-5501		1210			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Short list 4

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: <i>[Signature]</i>	Date/Time: 7/7/22	Received By: <i>[Signature]</i>	Date/Time: 7/7/22
<i>[Signature]</i>	7/7/22 12:00	<i>[Signature]</i>	7/7/22 2:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

GLARC 7/10/22 0120 GLARC 7/7/22 2350

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA
TEL: 508-895-9222
FAX: 508-898-9133

Mansfield, MA
TEL: 508-872-5000
FAX: 508-872-3288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Fax:
Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
36236-21	PB-824-21-5501	7/7/22	1220	S	an
22	PB-824-22-5501		1230		
23	PB-824-23-5501		1240		
24	PB-824-24-5501		1250		
25	PB-824-25-5501		1300		
26	PB-824-26-5501		1310		
27	FB-070722-1		1400	W	
28	FB-070722-2		1405		
29	FB-070722-3		1410		
30	DUP-34				

Container Type: _____
Preservative: _____

Relinquished By: *[Signature]* Date/Time: 7/7/22
 Received By: *[Signature]* Date/Time: 7/7/22 14:55

yes *[Signature]* 7/7/22
 G.L. PACE TRU... 7/7/22

Date Rec'd in Lab: 7/7/22 ALPHA Job #: 62236236

Report Information Data Deliverables Billing Information
 FAX EMAIL Same as Client info PO #: 3582
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits
 State/Fed Program: _____ Criteria: _____

ANALYSIS

Short list 4	ANALYSIS												TOTAL # BOTTLES	
	1	2	3	4	5	6	7	8	9	10	11	12		
21														1
22														2
23														3
24														
25														
26														
27														
28														
29														
30														

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

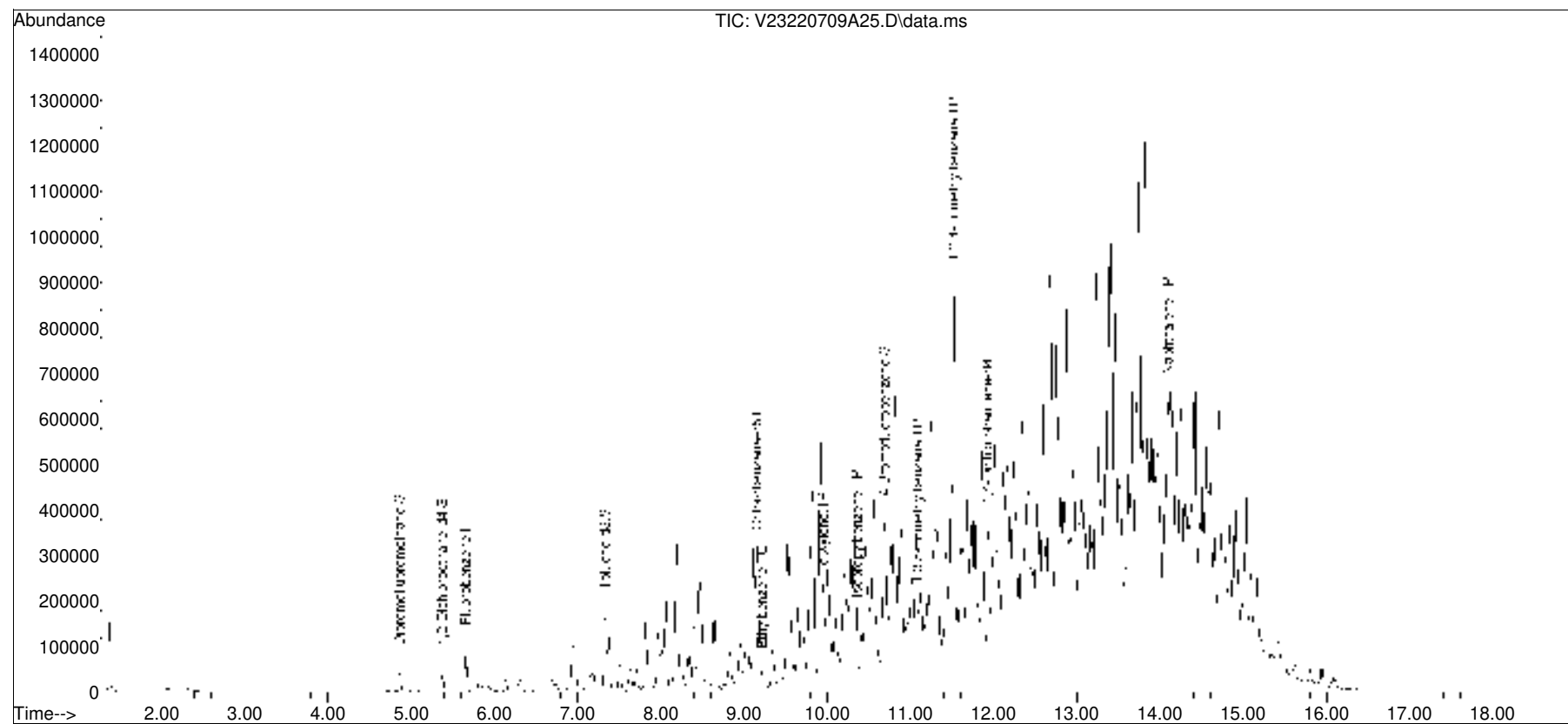
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220709A\
Data File : V23220709A25.D
Acq On : 09 Jul 2022 07:57 pm
Operator : VOA123:NLK
Sample : L2236236-10,31H,6.55,5,0.100,,A,R1D
Misc : WG1661142,ICAL19133
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 10 12:26:55 2022
Quant Method : I:\VOLATILES\VOA123\2022\220709A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V23220709A02.D•

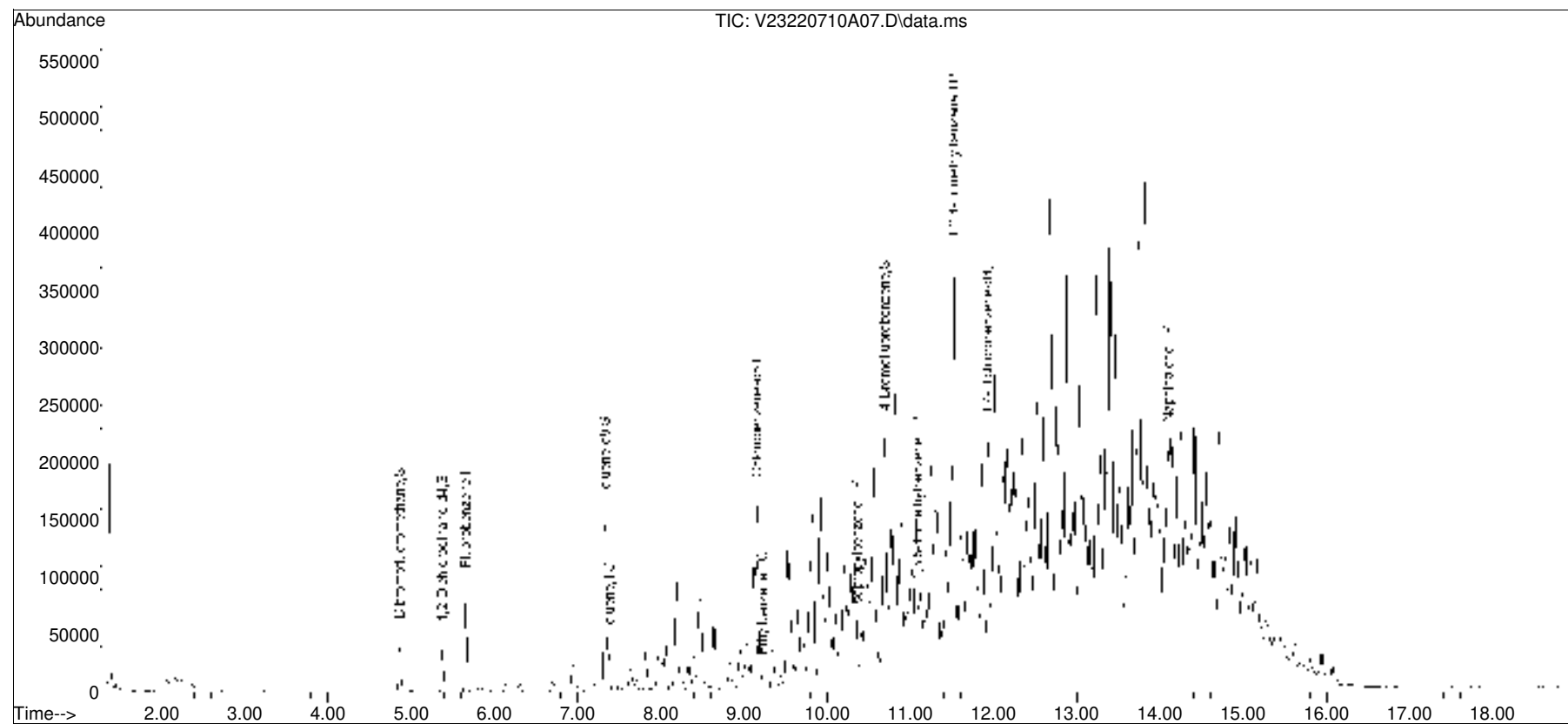


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
 Data File : V23220710A07.D
 Acq On : 10 Jul 2022 09:39 am
 Operator : VOA123:JC
 Sample : L2236236-11,31H,6.01,5,0.100,,A,R1D
 Misc : WG1661245,ICAL19133
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 11 06:23:50 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 28 08:23:04 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•

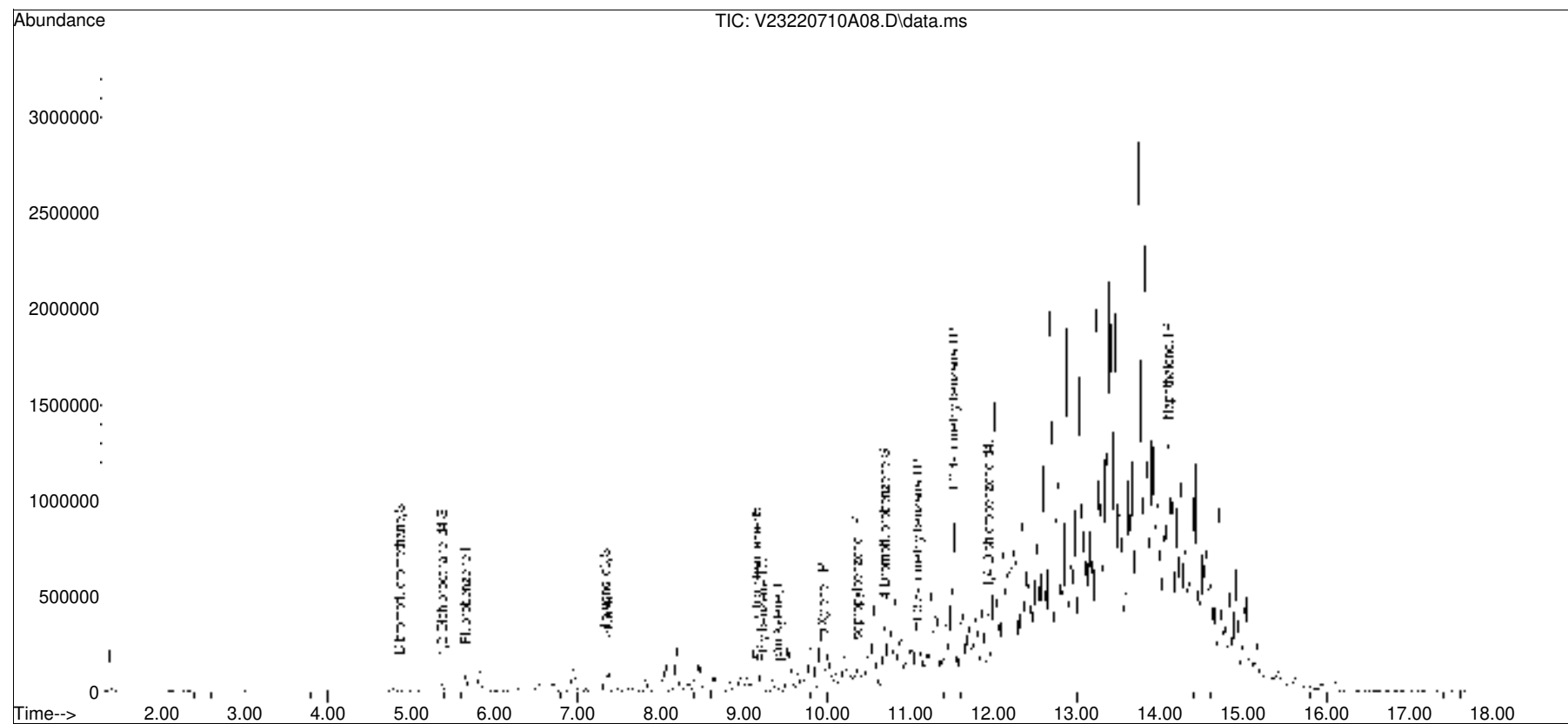


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
Data File : V23220710A08.D
Acq On : 10 Jul 2022 10:05 am
Operator : VOA123:JC
Sample : L2236236-13,31H,6.29,5,0.100,,A,R1D
Misc : WG1661245,ICAL19133
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 11 06:23:54 2022
Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•

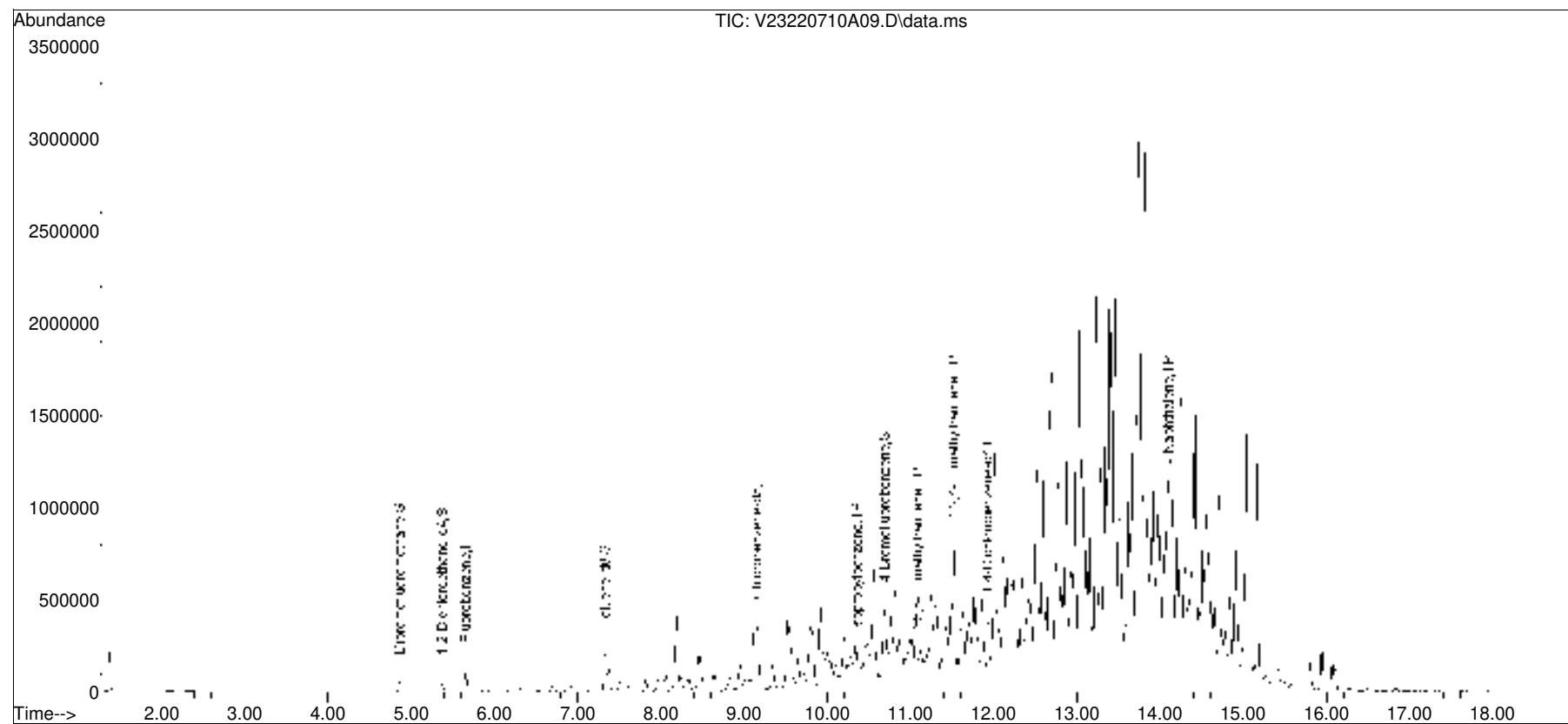


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
Data File : V23220710A09.D
Acq On : 10 Jul 2022 10:31 am
Operator : VOA123:JC
Sample : L2236236-14,31H,5.86,5,0.100,,A,R1D
Misc : WG1661245,ICAL19133
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 11 06:23:58 2022
Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•

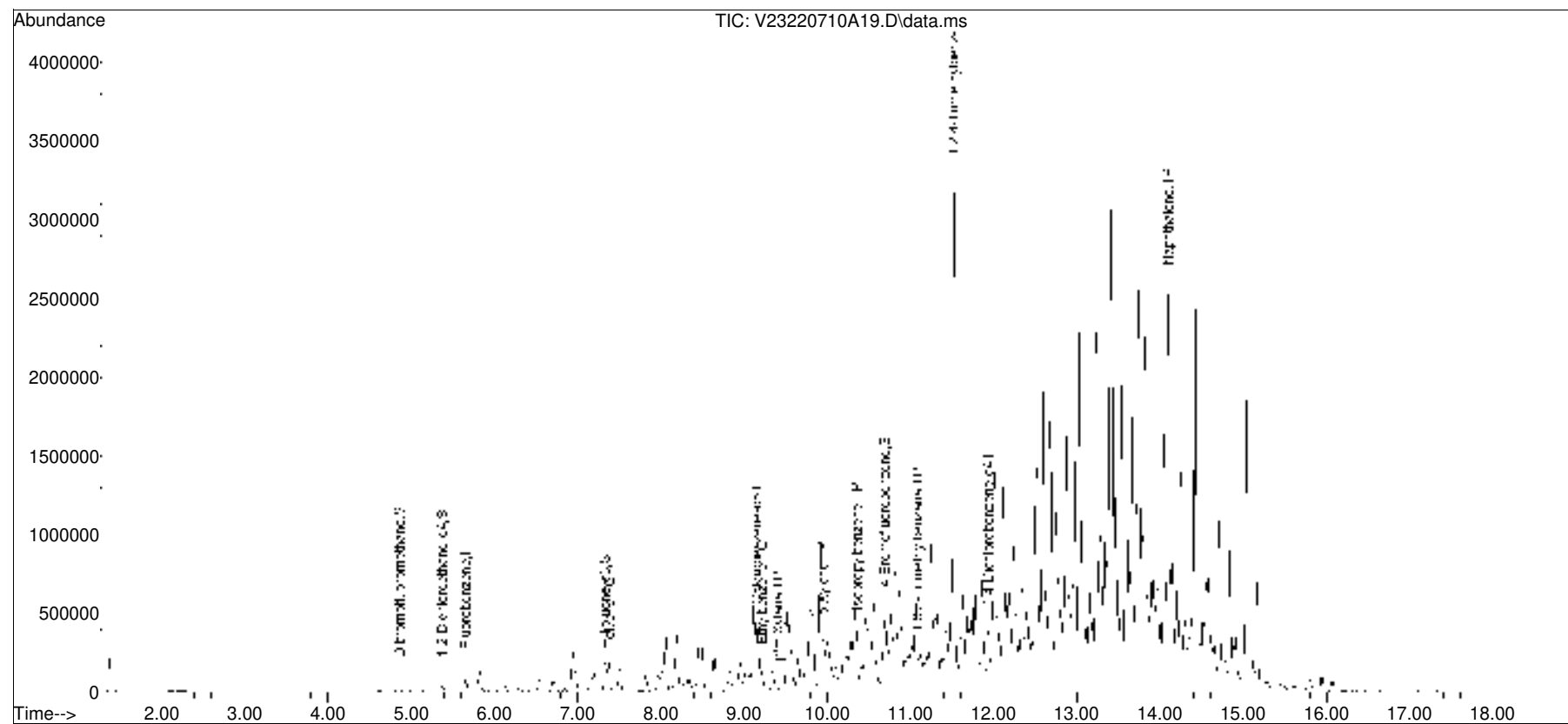


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
Data File : V23220710A19.D
Acq On : 10 Jul 2022 02:51 pm
Operator : VOA123:JC
Sample : L2236236-24, 31H, 6.07, 5, 0.100, , A, R1D
Misc : WG1661245, ICAL19133
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 11 06:24:38 2022
Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•





ANALYTICAL REPORT

Lab Number:	L2236264
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/14/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236264-01	PB-823-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:10	07/07/22
L2236264-02	PB-823-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:20	07/07/22
L2236264-03	PB-823-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:30	07/07/22
L2236264-04	PB-823-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:40	07/07/22
L2236264-05	PB-823-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:50	07/07/22
L2236264-06	PB-823-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:00	07/07/22
L2236264-07	PB-823-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:10	07/07/22
L2236264-08	PB-823-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:20	07/07/22
L2236264-09	PB-823-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:30	07/07/22
L2236264-10	PB-823-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:40	07/07/22
L2236264-11	PB-823-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:50	07/07/22
L2236264-12	PB-823-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:00	07/07/22
L2236264-13	PB-823-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:10	07/07/22
L2236264-14	PB-823-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:20	07/07/22
L2236264-15	PB-823-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:30	07/07/22
L2236264-16	PB-825-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:30	07/07/22
L2236264-17	PB-825-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:40	07/07/22
L2236264-18	PB-825-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:50	07/07/22
L2236264-19	PB-825-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:00	07/07/22
L2236264-20	PB-825-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:10	07/07/22
L2236264-21	PB-825-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:20	07/07/22
L2236264-22	PB-825-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:30	07/07/22
L2236264-23	PB-825-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:40	07/07/22
L2236264-24	PB-825-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:45	07/07/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236264-25	PB-825-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:50	07/07/22
L2236264-26	PB-825-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:55	07/07/22
L2236264-27	PB-825-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236264-28	PB-825-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:05	07/07/22
L2236264-29	PB-825-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236264-30	PB-825-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:15	07/07/22
L2236264-31	PB-825-16-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:20	07/07/22
L2236264-32	PB-825-17-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:25	07/07/22
L2236264-33	PB-825-18-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:30	07/07/22
L2236264-34	PB-825-19-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:35	07/07/22
L2236264-35	FB-070722-4	WATER	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236264-36	FB-070722-5	WATER	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236264-37	FB-070722-6	WATER	PHILADELPHIA, PA	07/07/22 14:20	07/07/22
L2236264-38	DUP-36	SOIL	PHILADELPHIA, PA	07/07/22 00:00	07/07/22
L2236264-39	TB-070722	WATER	PHILADELPHIA, PA	07/07/22 00:00	07/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative (continued)

Report Submission

July 14, 2022: This final report includes the results of all requested analyses.

July 13, 2022: This is a preliminary report.

July 12, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2236264-01, -04, -05, and -30: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2236264-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (176%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (174%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (375%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-30: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (147%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-32: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (131%) and 4-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative (continued)

bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-33D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2236264-33D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-34: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (256%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/14/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 02:13
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

Benzene	ND		mg/kg	0.032	0.011	1
---------	----	--	-------	-------	-------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	176	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-02
 Client ID: PB-823-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:01
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00048	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-03
 Client ID: PB-823-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:24
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-04
 Client ID: PB-823-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 02:36
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	ND		mg/kg	0.034	0.011	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	174	Q	70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-05
 Client ID: PB-823-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 18:29
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	ND		mg/kg	0.034	0.011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-06
 Client ID: PB-823-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:47
 Analyst: NLK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00069	0.00023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-07
 Client ID: PB-823-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 21:10
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 21:34
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00060	0.00020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 18:06
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00057	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-10
 Client ID: PB-823-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 22:21
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00059	0.00020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-11
 Client ID: PB-823-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 05:10
 Analyst: JC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00051	0.00017	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-12
 Client ID: PB-823-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 04:44
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00052	0.00017	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13
 Client ID: PB-823-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 14:08
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00058	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-14
 Client ID: PB-823-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 14:34
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00058	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-15
 Client ID: PB-823-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 15:01
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-16
 Client ID: PB-825-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 00:06
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	0.018		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.021		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.20		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	375	Q	70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-17
 Client ID: PB-825-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 15:56
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	ND		mg/kg	0.00077	0.00025	1
Toluene	ND		mg/kg	0.0015	0.00083	1
Ethylbenzene	ND		mg/kg	0.0015	0.00022	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-18
 Client ID: PB-825-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 16:22
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00065	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-19
 Client ID: PB-825-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 16:49
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00053	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-20
 Client ID: PB-825-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 17:16
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.0011		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0012		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0022		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.0025		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-21
 Client ID: PB-825-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 17:42
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-22
 Client ID: PB-825-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 18:09
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
Toluene	ND		mg/kg	0.0012	0.00063	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-23
 Client ID: PB-825-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 21:18
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00074	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-24
 Client ID: PB-825-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 21:44
 Analyst: AJK
 Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.016	0.0016	1
Benzene	ND		mg/kg	0.0039	0.0013	1
Toluene	ND		mg/kg	0.0078	0.0042	1
Ethylbenzene	0.0057	J	mg/kg	0.0078	0.0011	1
Isopropylbenzene	ND		mg/kg	0.0078	0.00085	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.016	0.0015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.016	0.0026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-25
 Client ID: PB-825-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 18:36
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 19:03
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-27
 Client ID: PB-825-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 10:25
 Analyst: MKS
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00013	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-28
 Client ID: PB-825-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 19:57
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.00022	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-29
 Client ID: PB-825-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 20:24
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	0.0032		mg/kg	0.0014	0.00020	1
Isopropylbenzene	0.0090		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.039		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.12		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-30
 Client ID: PB-825-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:15
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 20:51
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.013	J	mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	0.018	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	1.4		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.016	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	147	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-31
 Client ID: PB-825-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 01:30
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0010	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00030	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-32
 Client ID: PB-825-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 21:59
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.098		mg/kg	0.031	0.010	1
Toluene	0.25		mg/kg	0.062	0.034	1
Ethylbenzene	3.6		mg/kg	0.062	0.0088	1
Isopropylbenzene	1.6		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	15.		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	160	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-33 D
 Client ID: PB-825-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 06:13
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.27	0.027	2
Benzene	ND		mg/kg	0.067	0.022	2
Toluene	ND		mg/kg	0.13	0.073	2
Ethylbenzene	0.10	J	mg/kg	0.13	0.019	2
Isopropylbenzene	0.62		mg/kg	0.13	0.015	2
1,3,5-Trimethylbenzene	4.9		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	6.0		mg/kg	0.27	0.045	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:09
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	0.19		mg/kg	0.062	0.034	1
Ethylbenzene	7.5		mg/kg	0.062	0.0087	1
Isopropylbenzene	5.9		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	18.		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	256	Q	70-130
Dibromofluoromethane	80		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34 D
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 05:45
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	42.		mg/kg	1.2	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-35
 Client ID: FB-070722-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:04
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	119		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-36
 Client ID: FB-070722-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:29
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-37
 Client ID: FB-070722-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:55
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-38
 Client ID: DUP-36
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 01:58
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-39
 Client ID: TB-070722
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 11:20
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03,06-08,10 Batch: WG1660939-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04 Batch: WG1660941-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 15:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1661235-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 15:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1661236-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/11/22 23:24
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11-12 Batch: WG1662051-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/12/22 13:41
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 30 Batch: WG1662075-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/12/22 13:41
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 13-15,17-26,28-29 Batch: WG1662076-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/12/22 21:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,31,38 Batch: WG1662235-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/12/22 21:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 33-34 Batch: WG1662236-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/22 09:06
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 27 Batch: WG1662358-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/14/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 34 Batch: WG1662882-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/13/22 12:48
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 32 Batch: WG1662896-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/14/22 09:38
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 35-37,39 Batch: WG1662938-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03,06-08,10 Batch: WG1660939-3 WG1660939-4								
Benzene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04 Batch: WG1660941-3 WG1660941-4								
Benzene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 Batch: WG1661235-3 WG1661235-4								
Benzene	90		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		77		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	93		92		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1661236-3 WG1661236-4								
Benzene	90		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		77		70-130
Toluene-d8	98		95		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	93		92		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11-12 Batch: WG1662051-3 WG1662051-4								
Benzene	98		96		70-130	2		30

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	82		82		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 30 Batch: WG1662075-3 WG1662075-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	88		88		70-130	0		30
Toluene	89		89		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	82		81		70-130	1		30
1,3,5-Trimethylbenzene	83		82		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	106		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits		RPD	
	%Recovery	Qual	%Recovery	Qual	RPD	Qual	RPD Limits	
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 13-15,17-26,28-29 Batch: WG1662076-3 WG1662076-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	88		88		70-130	0		30
Toluene	89		89		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	82		81		70-130	1		30
1,3,5-Trimethylbenzene	83		82		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	106		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,31,38 Batch: WG1662235-3 WG1662235-4								
Methyl tert butyl ether	100		101		66-130	1		30
Benzene	99		100		70-130	1		30
Toluene	101		102		70-130	1		30
Ethylbenzene	99		101		70-130	2		30
Isopropylbenzene	100		99		70-130	1		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	104		104		70-130
Toluene-d8	104		105		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 33-34 Batch: WG1662236-3 WG1662236-4								
Methyl tert butyl ether	100		101		66-130	1		30
Benzene	99		100		70-130	1		30
Toluene	101		102		70-130	1		30
Ethylbenzene	99		101		70-130	2		30
Isopropylbenzene	100		99		70-130	1		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	104		104		70-130
Toluene-d8	104		105		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27 Batch: WG1662358-3 WG1662358-4								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	85		87		70-130	2		30
Toluene	78		81		70-130	4		30
Ethylbenzene	85		87		70-130	2		30
Isopropylbenzene	88		90		70-130	2		30
1,3,5-Trimethylbenzene	88		89		70-130	1		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		101		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	102		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 34 Batch: WG1662882-3 WG1662882-4								
Methyl tert butyl ether	118		118		66-130	0		30
Benzene	106		109		70-130	3		30
Toluene	108		108		70-130	0		30
Ethylbenzene	106		107		70-130	1		30
Isopropylbenzene	113		112		70-130	1		30
1,3,5-Trimethylbenzene	109		108		70-130	1		30
1,2,4-Trimethylbenzene	110		109		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	109		107		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 32 Batch: WG1662896-3 WG1662896-4								
Methyl tert butyl ether	120		122		66-130	2		30
Benzene	111		111		70-130	0		30
Toluene	112		113		70-130	1		30
Ethylbenzene	111		111		70-130	0		30
Isopropylbenzene	115		117		70-130	2		30
1,3,5-Trimethylbenzene	112		111		70-130	1		30
1,2,4-Trimethylbenzene	111		112		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		108		70-130
Dibromofluoromethane	90		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 35-37,39 Batch: WG1662938-3 WG1662938-4								
Methyl tert butyl ether	84		85		63-130	1		20
Benzene	100		100		70-130	0		20
Toluene	96		97		70-130	1		20
Ethylbenzene	100		97		70-130	3		20
Isopropylbenzene	98		97		70-130	1		20
1,3,5-Trimethylbenzene	94		97		64-130	3		20
1,2,4-Trimethylbenzene	93		96		70-130	3		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	103		99		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	96		95		70-130
Dibromofluoromethane	111		105		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:42
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.6		mg/kg	0.20	0.024	1
Fluorene	0.25		mg/kg	0.20	0.019	1
Phenanthrene	0.37		mg/kg	0.12	0.024	1
Anthracene	0.078	J	mg/kg	0.12	0.039	1
Pyrene	0.087	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.054	J	mg/kg	0.12	0.022	1
Chrysene	0.056	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	135	Q	23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	50		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-02
 Client ID: PB-823-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:05
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-03
 Client ID: PB-823-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:29
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	51		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-04
 Client ID: PB-823-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:52
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.90		mg/kg	0.20	0.024	1
Fluorene	0.21		mg/kg	0.20	0.019	1
Phenanthrene	0.32		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	0.050	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.042	J	mg/kg	0.12	0.022	1
Chrysene	0.040	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	52		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-05
 Client ID: PB-823-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:43
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.81		mg/kg	0.20	0.024	1
Fluorene	0.39		mg/kg	0.20	0.019	1
Phenanthrene	0.50		mg/kg	0.12	0.024	1
Anthracene	0.12		mg/kg	0.12	0.039	1
Pyrene	0.13		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.075	J	mg/kg	0.12	0.022	1
Chrysene	0.073	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.036	J	mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.024	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-06
 Client ID: PB-823-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:05
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-07
 Client ID: PB-823-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:28
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:50
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:13
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-10
 Client ID: PB-823-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:35
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-11
 Client ID: PB-823-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:57
 Analyst: ALS
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-12
 Client ID: PB-823-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:20
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13
 Client ID: PB-823-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:20
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-14
 Client ID: PB-823-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:42
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	100		30-120
4-Terphenyl-d14	105		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-15
 Client ID: PB-823-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:05
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.20	0.024	1
Fluorene	0.55		mg/kg	0.20	0.019	1
Phenanthrene	1.0		mg/kg	0.12	0.024	1
Anthracene	0.094	J	mg/kg	0.12	0.038	1
Pyrene	0.11	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-16
 Client ID: PB-825-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:27
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.18	J	mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	135	Q	23-120
2-Fluorobiphenyl	146	Q	30-120
4-Terphenyl-d14	135	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-17
 Client ID: PB-825-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:50
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	87		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-18
 Client ID: PB-825-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:13
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-19
 Client ID: PB-825-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:37
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	100		30-120
4-Terphenyl-d14	103		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-20
 Client ID: PB-825-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:15
 Analyst: JG
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-21
 Client ID: PB-825-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:53
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-22
 Client ID: PB-825-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:30
 Analyst: JG
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.025	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-23
 Client ID: PB-825-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:08
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-24
 Client ID: PB-825-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:47
 Analyst: JG
 Percent Solids: 61%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.27	0.033	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	141	Q	23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	54		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-25
 Client ID: PB-825-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 19:45
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/13/22 06:05
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	56		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-27
 Client ID: PB-825-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:10
 Analyst: JG
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.22	0.027	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-28
 Client ID: PB-825-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/13/22 06:51
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.025	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	97		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	54		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-29
 Client ID: PB-825-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:57
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-30
 Client ID: PB-825-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:15
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 23:21
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.13	J	mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-31
 Client ID: PB-825-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 23:44
 Analyst: JG
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.22	0.027	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-32
 Client ID: PB-825-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/11/22 00:08
 Analyst: JG
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.20		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-33
 Client ID: PB-825-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/11/22 00:31
 Analyst: JG
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.39		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:00
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	1.2		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-35
 Client ID: FB-070722-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 15:52
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/09/22 02:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	34		15-120
4-Terphenyl-d14	39	Q	41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-36
 Client ID: FB-070722-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 16:08
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 17:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	30		23-120
2-Fluorobiphenyl	31		15-120
4-Terphenyl-d14	40	Q	41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-37
 Client ID: FB-070722-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 16:24
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 17:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	49		15-120
4-Terphenyl-d14	57		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-38
 Client ID: DUP-36
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:22
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/12/22 11:59
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 35-37 Batch: WG1660313-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	26		23-120
2-Fluorobiphenyl	27		15-120
4-Terphenyl-d14	25	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/09/22 14:36
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-13 Batch: WG1660333-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	105		30-120
4-Terphenyl-d14	127	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/09/22 13:29
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 14-33 Batch: WG1660507-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	97		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/10/22 17:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 34,38 Batch: WG1660522-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	74		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 35-37 Batch: WG1660313-2 WG1660313-3								
Naphthalene	64		64		40-140	0		40
Fluorene	64		66		40-140	3		40
Phenanthrene	65		66		40-140	2		40
Anthracene	66		68		40-140	3		40
Pyrene	70		70		26-127	0		40
Benzo(a)anthracene	62		65		40-140	5		40
Chrysene	70		70		40-140	0		40
Benzo(b)fluoranthene	64		71		40-140	10		40
Benzo(a)pyrene	66		66		40-140	0		40
Benzo(ghi)perylene	73		75		40-140	3		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	31		31		23-120
2-Fluorobiphenyl	31		32		15-120
4-Terphenyl-d14	35	Q	36	Q	41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-13 Batch: WG1660333-2 WG1660333-3								
Naphthalene	76		70		40-140	8		50
Fluorene	91		81		40-140	12		50
Phenanthrene	78		71		40-140	9		50
Anthracene	84		75		40-140	11		50
Pyrene	87		78		35-142	11		50
Benzo(a)anthracene	94		84		40-140	11		50
Chrysene	91		82		40-140	10		50
Benzo(b)fluoranthene	100		91		40-140	9		50
Benzo(a)pyrene	103		92		40-140	11		50
Benzo(ghi)perylene	86		79		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	74		67		23-120
2-Fluorobiphenyl	87		79		30-120
4-Terphenyl-d14	102		90		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 14-33 Batch: WG1660507-2 WG1660507-3								
Naphthalene	81		67		40-140	19		50
Fluorene	96		76		40-140	23		50
Phenanthrene	84		67		40-140	23		50
Anthracene	90		72		40-140	22		50
Pyrene	93		75		35-142	21		50
Benzo(a)anthracene	99		81		40-140	20		50
Chrysene	97		80		40-140	19		50
Benzo(b)fluoranthene	113		90		40-140	23		50
Benzo(a)pyrene	112		91		40-140	21		50
Benzo(ghi)perylene	92		75		40-140	20		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		68		23-120
2-Fluorobiphenyl	95		76		30-120
4-Terphenyl-d14	110		88		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 34,38 Batch: WG1660522-2 WG1660522-3								
Naphthalene	72		66		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	72		65		23-120
2-Fluorobiphenyl	76		65		30-120
4-Terphenyl-d14	76		62		18-120



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-02

Date Collected: 07/07/22 09:20

Client ID: PB-823-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-03

Date Collected: 07/07/22 09:30

Client ID: PB-823-03-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-04

Date Collected: 07/07/22 09:40

Client ID: PB-823-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-05

Date Collected: 07/07/22 09:50

Client ID: PB-823-05-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-06

Date Collected: 07/07/22 10:00

Client ID: PB-823-06-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-07

Date Collected: 07/07/22 10:10

Client ID: PB-823-07-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-10

Date Collected: 07/07/22 10:40

Client ID: PB-823-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-11

Date Collected: 07/07/22 10:50

Client ID: PB-823-11-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-12

Date Collected: 07/07/22 11:00

Client ID: PB-823-12-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13
 Client ID: PB-823-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-14

Date Collected: 07/07/22 11:20

Client ID: PB-823-14-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-15

Date Collected: 07/07/22 11:30

Client ID: PB-823-15-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-16

Date Collected: 07/07/22 12:30

Client ID: PB-825-01-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-17

Date Collected: 07/07/22 12:40

Client ID: PB-825-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-18

Date Collected: 07/07/22 12:50

Client ID: PB-825-03-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-19

Date Collected: 07/07/22 13:00

Client ID: PB-825-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-20

Date Collected: 07/07/22 13:10

Client ID: PB-825-05-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-21
 Client ID: PB-825-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-22

Date Collected: 07/07/22 13:30

Client ID: PB-825-07-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-23

Date Collected: 07/07/22 13:40

Client ID: PB-825-08-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-24
 Client ID: PB-825-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-25

Date Collected: 07/07/22 13:50

Client ID: PB-825-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-27

Date Collected: 07/07/22 14:00

Client ID: PB-825-12-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-28

Date Collected: 07/07/22 14:05

Client ID: PB-825-13-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-29

Date Collected: 07/07/22 14:10

Client ID: PB-825-14-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-30

Date Collected: 07/07/22 14:15

Client ID: PB-825-15-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-31

Date Collected: 07/07/22 14:20

Client ID: PB-825-16-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.5		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-32

Date Collected: 07/07/22 14:25

Client ID: PB-825-17-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236264**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-33

Client ID: PB-825-18-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:30

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-34

Date Collected: 07/07/22 14:35

Client ID: PB-825-19-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-38

Date Collected: 07/07/22 00:00

Client ID: DUP-36

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1660438-1 QC Sample: L2236264-01 Client ID: PB-823-01-SS01						
Solids, Total	82.4	82.7	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-34,38 QC Batch ID: WG1660441-1 QC Sample: L2236264-21 Client ID: PB-825-06-SS01						
Solids, Total	83.2	83.5	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-01A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-01B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-01C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-01D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-01E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-02A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-02B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-02C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-02D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-02E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-03A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-03B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-03C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-03D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-03E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-04A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-04B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-04C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-04D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-04E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-05A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-05B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-05C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-05D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-05E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-06A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-06B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-06C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-06D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-06E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-07A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-07B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-07C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-07D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-07E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-08A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-08B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-08C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-08D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-08E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-09A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-09B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-09C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-09D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-09E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-10A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-10B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-10C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-10D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-10E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-11A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-11B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-11C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-11D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-11E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-12A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-12B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-12C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-12D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-12E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-13A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-13B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-13C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-13D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-13E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-14A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-14B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-14C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-14D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-14E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-15A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-15B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-15C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-15D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-15E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-16A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:07142213:59
Lab Number: L2236264
Report Date: 07/14/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-16B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-16C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-16D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-16E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-17A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-17B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-17C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-17D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-17E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-18A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-18B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-18C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-18D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-18E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-19A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-19B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-19C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-19D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-19E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-20A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-20B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-20C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-20D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-20E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-21A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-21B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-21C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-21D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-21E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-22A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-22B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-22C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-22D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-22E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-23A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-23B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-23C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-23D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-23E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-24A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-24B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-24C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-24D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-24E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-25A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-25B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-25C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-25D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-25E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-26A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-26B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-26C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-26D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-26E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-27A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-27B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-27C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-27D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-27E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-28A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-28B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-28C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-28D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-28E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-29A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-29B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-29C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-29D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-29E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-30A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-30B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-30C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-30D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-30E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-31A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-31B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-31C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-31D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-31E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-32A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-32B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-32C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-32D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-32E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-33A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-33B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-33C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-33D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-33E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-34A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-34B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-34C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-34D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-34E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-35A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-35E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-36A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-36E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-37A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-37E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-38A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-38B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-38C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-38D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-38E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-39A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-39B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-39C	Vial Na2S2O3 preserved	NA	NA			Y	Absent		-



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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

PADEP Short List Analytical Suites per Table III-5:

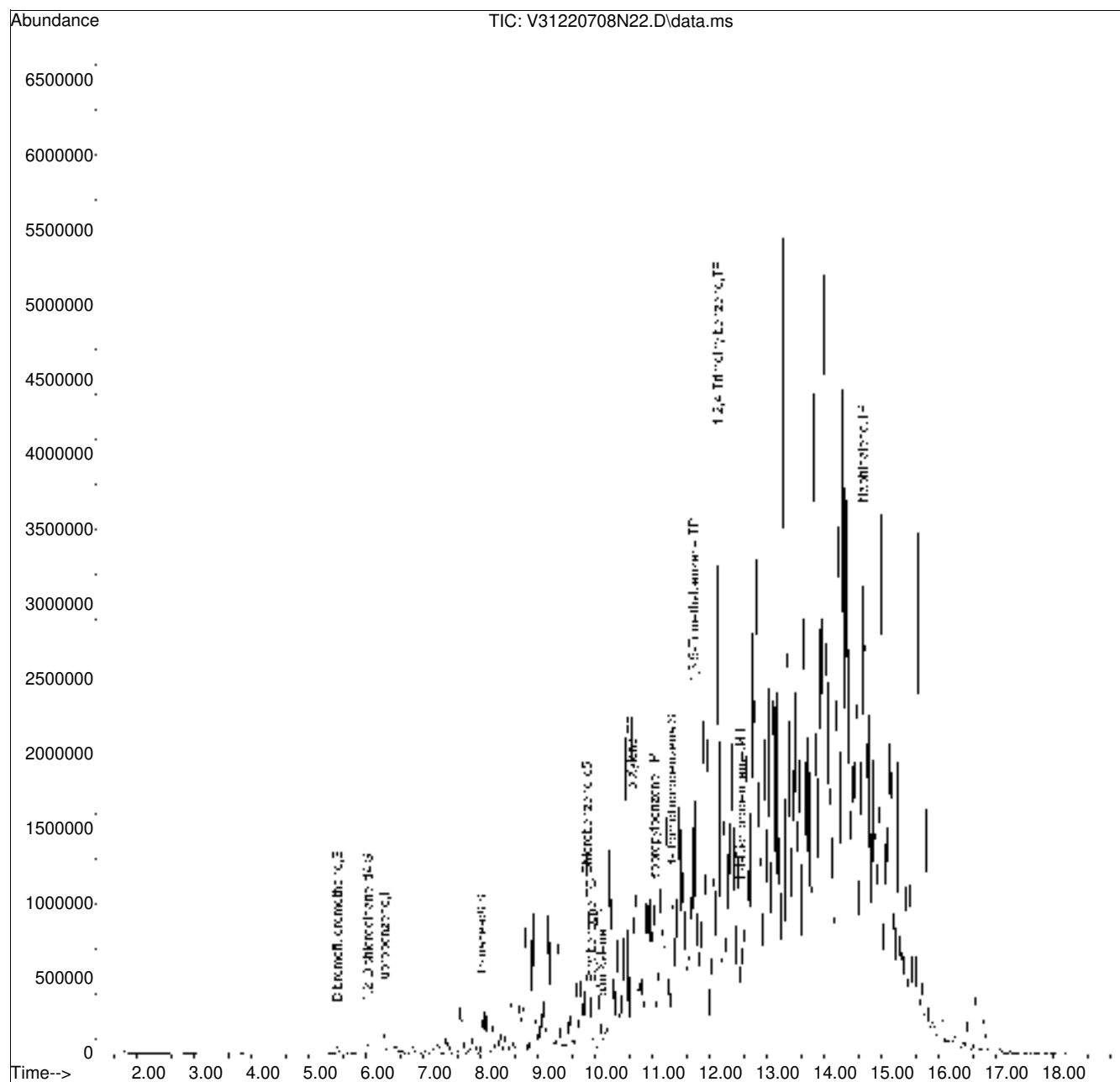
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708N\
 Data File : V31220708N22.D
 Acq On : 09 Jul 2022 02:13 am
 Operator : VOA131:NLK
 Sample : 12236264-01,31h,5.59,5,0.100,,a,r1c
 Misc : WG1660941,ICAL19050
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 09 11:36:00 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708N\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08N\V31220708N01.D•

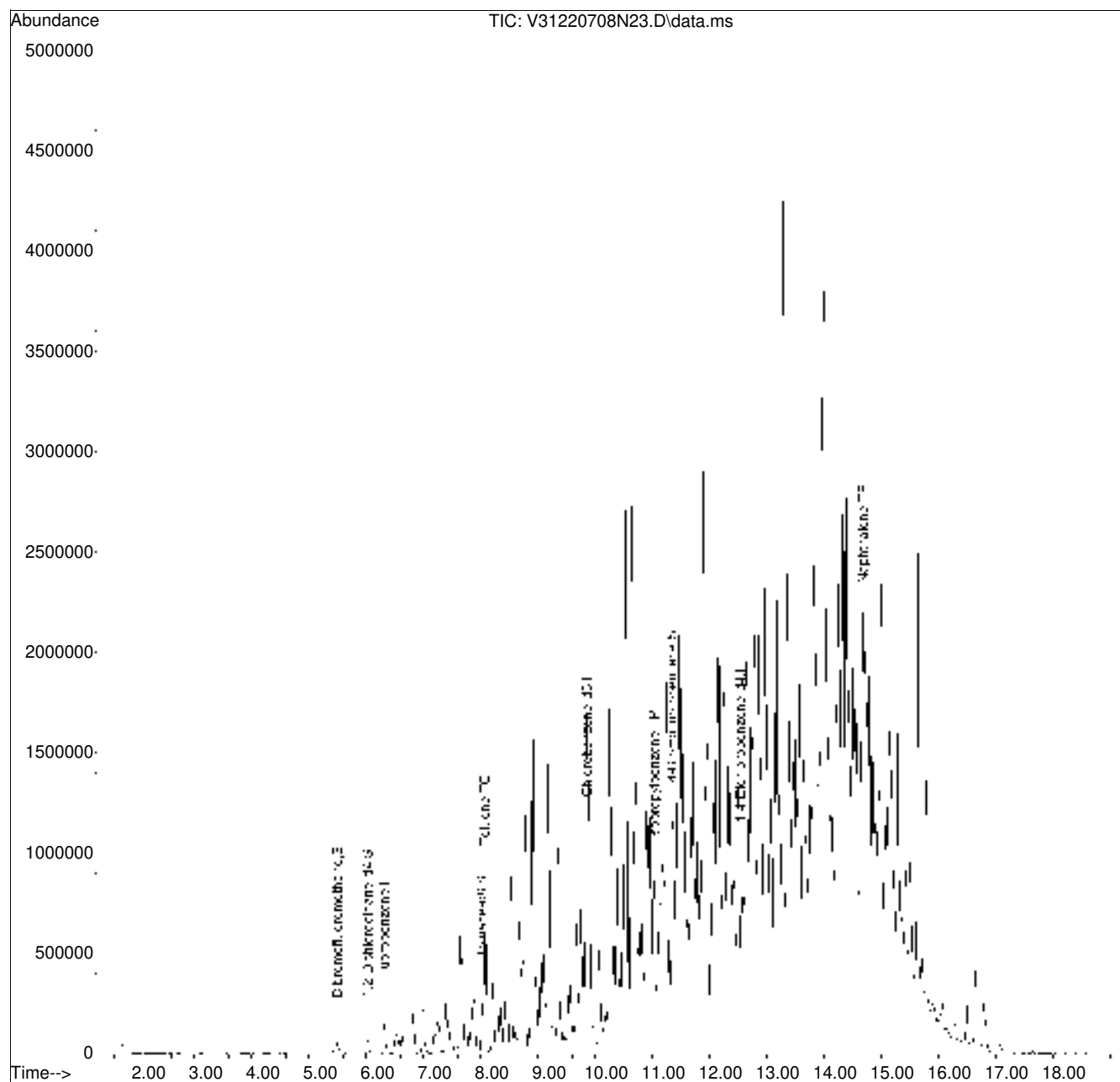


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708N\
Data File : V31220708N23.D
Acq On : 09 Jul 2022 02:36 am
Operator : VOA131:NLK
Sample : 12236264-04,31h,5.21,5,0.100,,a,r1c
Misc : WG1660941,ICAL19050
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 10 10:57:57 2022
Quant Method : I:\VOLATILES\VOA131\2022\220708N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08N\V31220708N01.D•

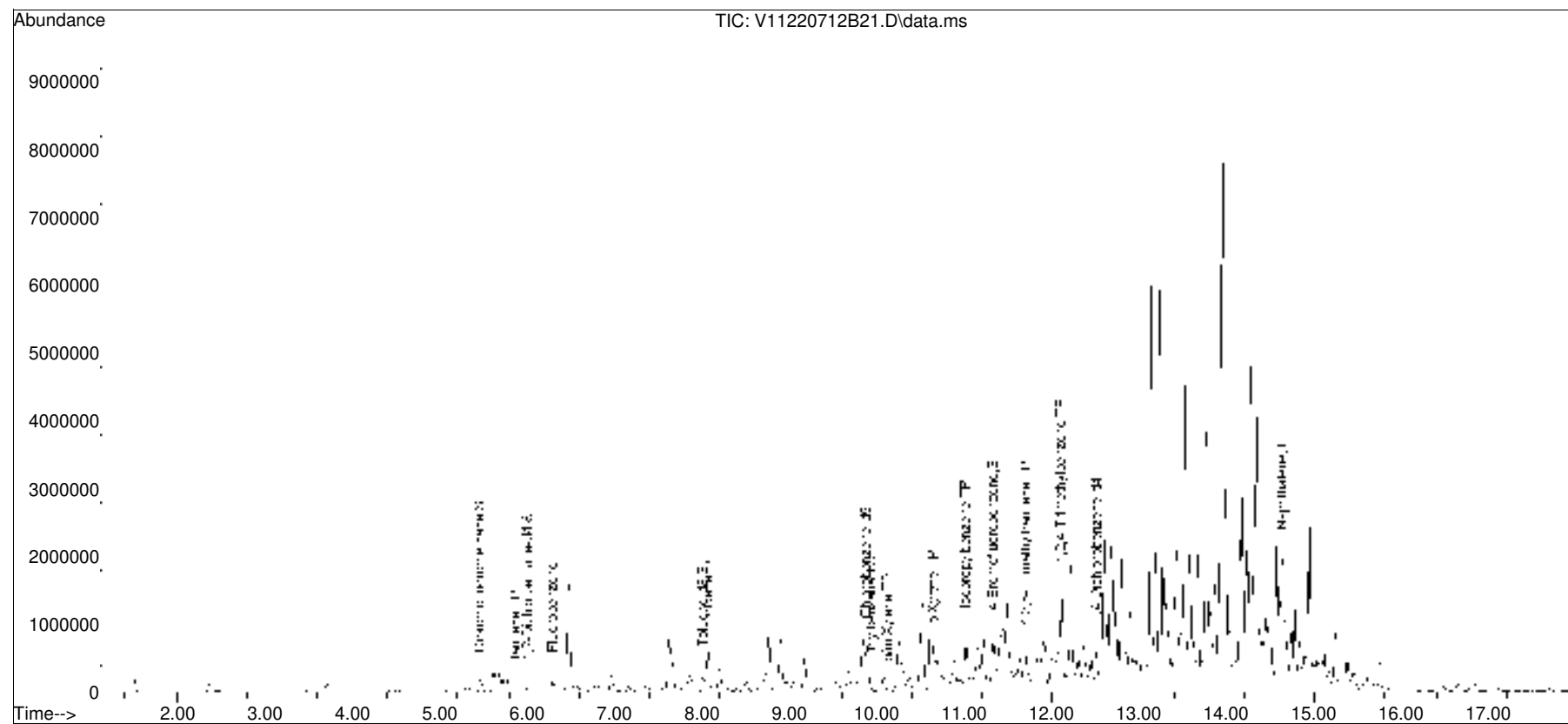


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220712B\
Data File : V11220712B21.D
Acq On : 12 Jul 2022 08:51 pm
Operator : VOA111:AJK
Sample : L2236264-30,31H,5.66,5,0.100,,A,R1C
Misc : WG1662075,ICAL19072
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 13 00:01:32 2022
Quant Method : I:\VOLATILES\VOA111\2022\220712B\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12B\V11220712B01.D•

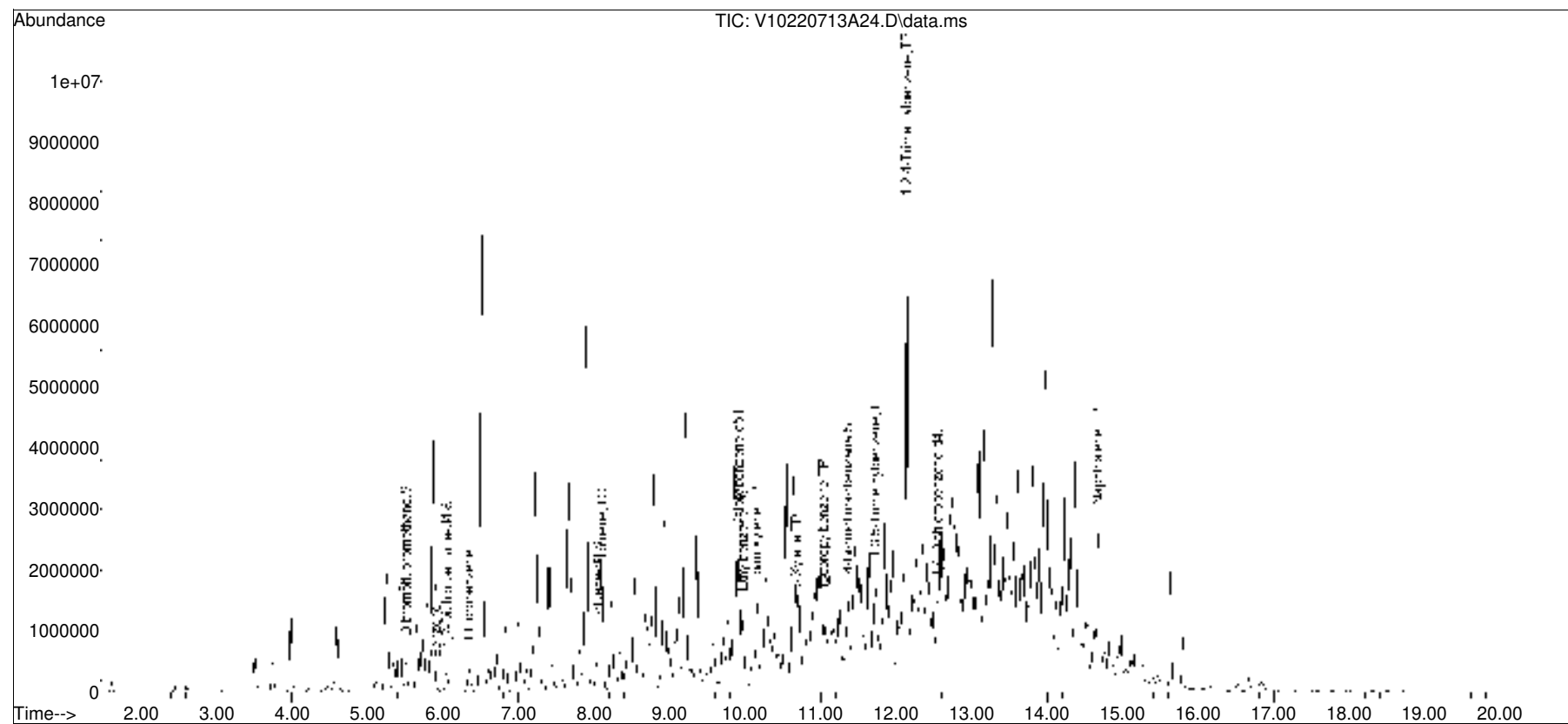


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220713A\
Data File : V10220713A24.D
Acq On : 13 Jul 2022 9:59 pm
Operator : VOA110:JC
Sample : 12236264-32, 31h, 5.39, 5, 0.100, , a
Misc : WG1662896, ICAL18890
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 14 09:26:24 2022
Quant Method : I:\VOLATILES\VOA110\2022\220713A\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10220713A01.D•

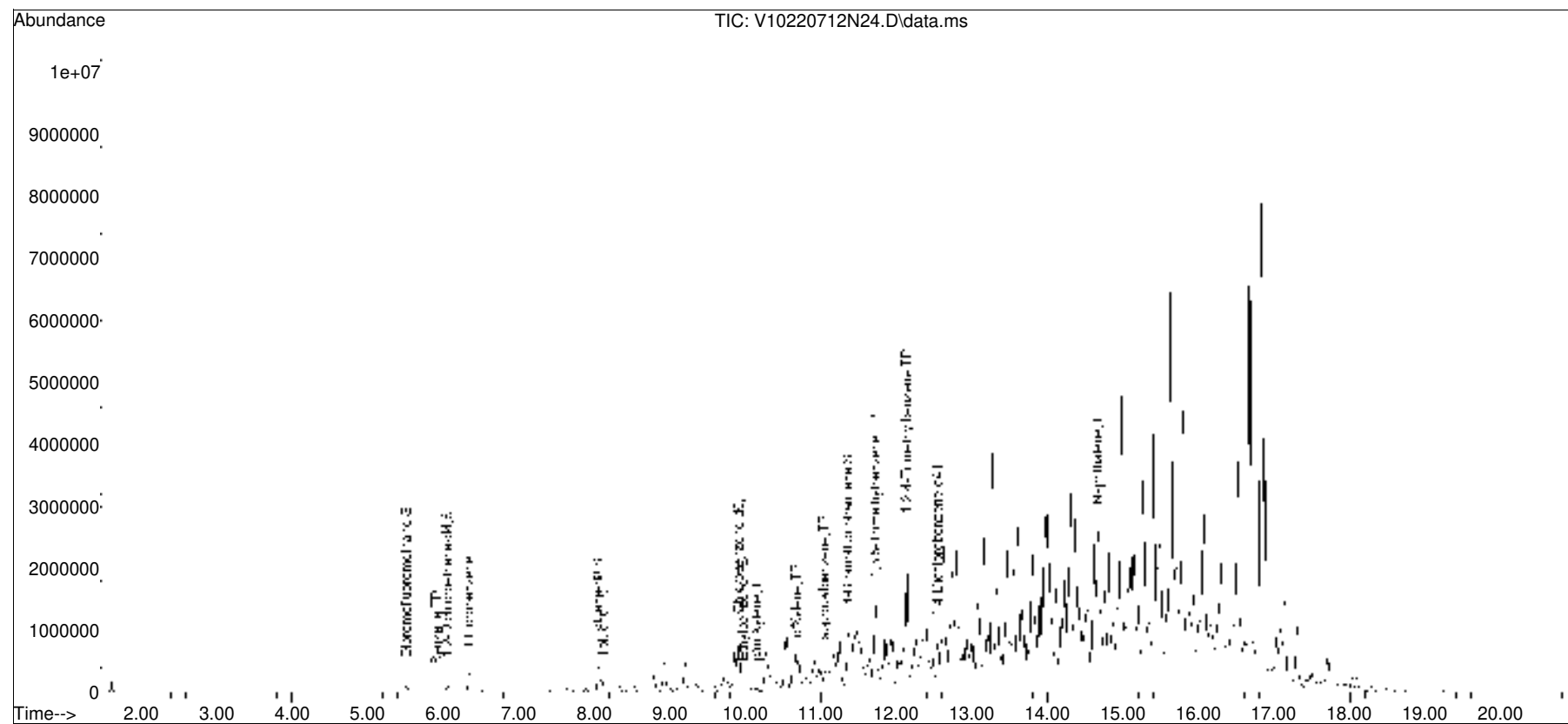


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220712N\
Data File : V10220712N24.D
Acq On : 13 Jul 2022 6:13 am
Operator : VOA110:JC
Sample : 12236264-33D,31h,4.89,5,0.050,,a,r1c
Misc : WG1662236,ICAL18890
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 13 06:45:53 2022
Quant Method : I:\VOLATILES\VOA110\2022\220712N\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V10220712N01.D•

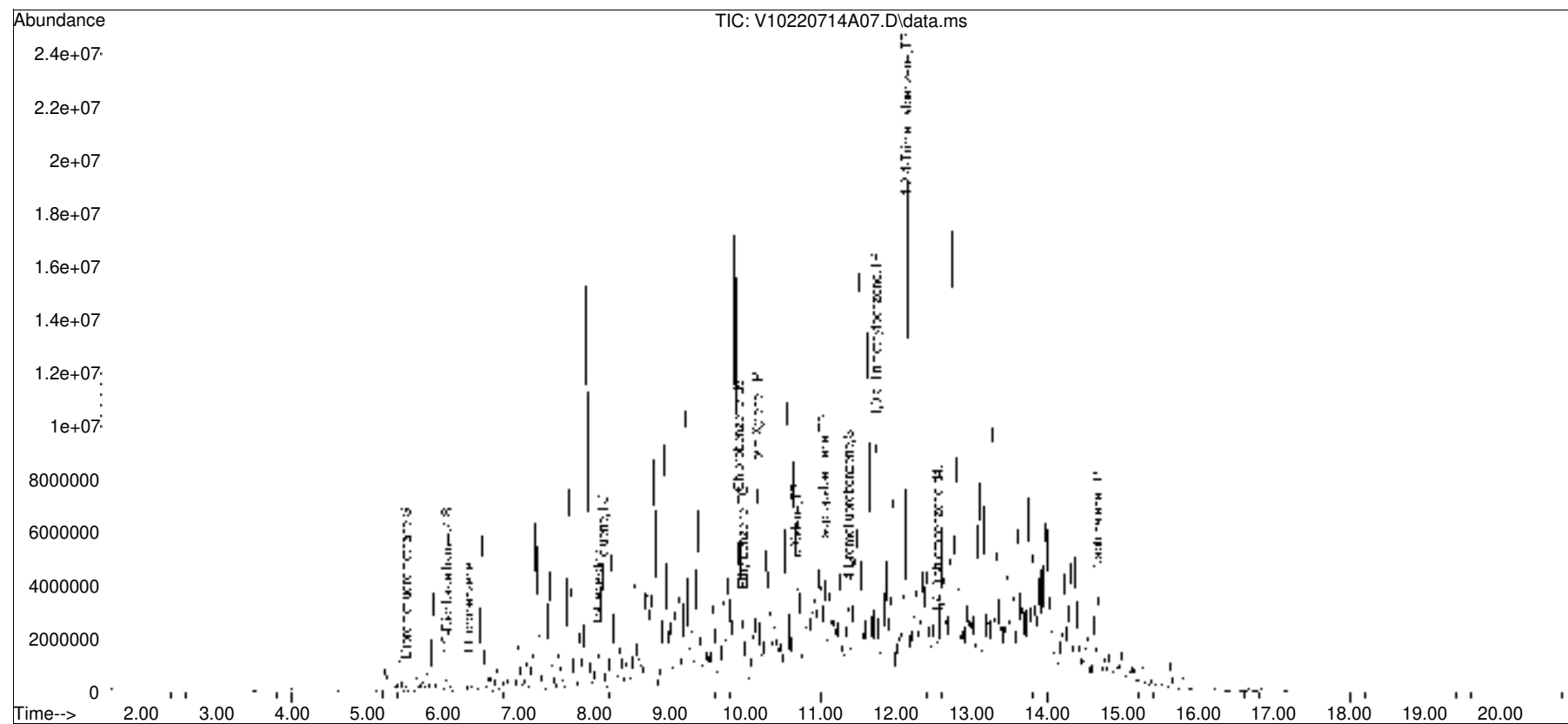


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220714A\
Data File : V10220714A07.D
Acq On : 14 Jul 2022 10:09 am
Operator : VOA110:MKS
Sample : 12236264-34, 31h, 5.33, 5, 0.100, , a
Misc : WG1662882, ICAL18890
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 14 11:09:37 2022
Quant Method : I:\VOLATILES\VOA110\2022\220714A\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V10220714A01.D•





ANALYTICAL REPORT

Lab Number:	L2239626
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/08/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239626-01	PB-253-19-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 09:50	07/25/22
L2239626-02	PB-253-19-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 10:00	07/25/22
L2239626-03	PB-253-19-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 10:10	07/25/22
L2239626-04	PB-253-19-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 10:20	07/25/22
L2239626-05	PB-253-18-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 11:00	07/25/22
L2239626-06	PB-253-18-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 11:10	07/25/22
L2239626-07	PB-253-18-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 11:20	07/25/22
L2239626-08	PB-253-18-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 11:30	07/25/22
L2239626-09	PB-253-1R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 12:00	07/25/22
L2239626-10	PB-253-1R-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 12:10	07/25/22
L2239626-11	PB-253-1R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 12:20	07/25/22
L2239626-12	PB-253-1R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 12:30	07/25/22
L2239626-13	PB-253-20-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 13:00	07/25/22
L2239626-14	PB-253-20-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 13:10	07/25/22
L2239626-15	PB-253-20-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 13:20	07/25/22
L2239626-16	PB-253-20-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 13:30	07/25/22
L2239626-17	PB-253-21-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 14:00	07/25/22
L2239626-18	PB-253-21-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 14:10	07/25/22
L2239626-19	PB-253-21-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 14:20	07/25/22
L2239626-20	PB-253-21-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 14:30	07/25/22
L2239626-21	FB-072522-1	WATER	PHILADELPHIA, PA	07/25/22 14:40	07/25/22
L2239626-22	FB-072522-2	WATER	PHILADELPHIA, PA	07/25/22 14:45	07/25/22
L2239626-23	TB-072522	WATER	PHILADELPHIA, PA	07/25/22 00:00	07/25/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative (continued)

Report Submission

August 08, 2022: This final report includes the results of all requested analyses.

August 01, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2239626-03: The collection date and time on the chain of custody was 25-JUL-22 10:10; however, the collection date/time on the container label was 25-JUL-22 10:00. At the client's request, the collection date/time is reported as 25-JUL-22 10:10.

L2239626-23: Headspace was noted in the sample containers submitted for Volatile Organics. The analysis was performed at the client's request.

Volatile Organics

L2239626-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (191%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-03D: The surrogate recovery is outside the acceptance criteria for 1,2-dichloroethane-d4 (212%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative (continued)

L2239626-10D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (170%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 08/08/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-01 D
 Client ID: PB-253-19-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 09:50
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 20:37
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by GC/MS - Westborough Lab						
Benzene	2.8		mg/kg	0.15	0.050	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-02 D
 Client ID: PB-253-19-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 19:22
 Analyst: LAC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

Benzene	8.1		mg/kg	0.11	0.037	2
---------	-----	--	-------	------	-------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	191	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-03 D
 Client ID: PB-253-19-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 21:15
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by GC/MS - Westborough Lab						
Benzene	65.		mg/kg	0.15	0.050	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	212	Q	70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-04 D
 Client ID: PB-253-19-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 21:54
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	6.2		mg/kg	0.058	0.019	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-05
 Client ID: PB-253-18-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 18:41
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.11		mg/kg	0.032	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-06
 Client ID: PB-253-18-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 00:48
 Analyst: KJD
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.1		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	88		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-07 D
 Client ID: PB-253-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 22:32
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.60		mg/kg	0.31	0.10	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-08
 Client ID: PB-253-18-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 19:19
 Analyst: NLK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.067		mg/kg	0.027	0.0089	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	83		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-09
 Client ID: PB-253-1R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/26/22 22:34
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00038	J	mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	164	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10 D
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 18:56
 Analyst: LAC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	3.8		mg/kg	0.059	0.020	2
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	170	Q	70-130
Dibromofluoromethane	73		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-11
 Client ID: PB-253-1R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 01:41
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	3.8		mg/kg	0.055	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-12
 Client ID: PB-253-1R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/04/22 12:35
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.052		mg/kg	0.028	0.0094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-13
 Client ID: PB-253-20-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 19:58
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.43		mg/kg	0.056	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-14 D
 Client ID: PB-253-20-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 18:30
 Analyst: LAC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	120		mg/kg	0.63	0.21	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	142	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-15 D
 Client ID: PB-253-20-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 23:11
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	360		mg/kg	8.0	2.6	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-16 D
 Client ID: PB-253-20-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/04/22 12:57
 Analyst: AJK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	1.2		mg/kg	0.51	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-18
 Client ID: PB-253-21-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/26/22 23:01
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00056	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-21
 Client ID: FB-072522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:40
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 19:44
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-22
 Client ID: FB-072522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:45
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 20:08
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
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Benzene	ND		ug/l	0.50	0.16	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-23
 Client ID: TB-072522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 00:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 20:31
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
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Benzene	ND		ug/l	0.50	0.16	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/26/22 16:48
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,18 Batch: WG1668055-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/26/22 16:48
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,11 Batch: WG1668060-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/27/22 11:23
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,10,14 Batch: WG1668518-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 19:21
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-23 Batch: WG1668960-5					
Benzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/03/22 14:46
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03-05,07-08,13,15 Batch: WG1671337-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/04/22 08:26
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12,16 Batch: WG1671502-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,18 Batch: WG1668055-3 WG1668055-4								
Benzene	102		92		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,11 Batch: WG1668060-3 WG1668060-4								
Benzene	102		92		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,10,14 Batch: WG1668518-3 WG1668518-4								
Benzene	92		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	103		102		70-130
Dibromofluoromethane	97		99		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239626

Project Number: 200.00135.006

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-23 Batch: WG1668960-3 WG1668960-4								
Benzene	92		92		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	104		102		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03-05,07-08,13,15 Batch: WG1671337-3 WG1671337-4								
Benzene	110		109		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		95		70-130
Toluene-d8	93		93		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12,16 Batch: WG1671502-3 WG1671502-4								
Benzene	83		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		96		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	92		90		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/27/22 17:27
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/26/22 21:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	3.3		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	88		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-18
 Client ID: PB-253-21-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/27/22 17:49
 Analyst: CMM
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/26/22 21:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-21
 Client ID: FB-072522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:40
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/27/22 09:07
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	56		15-120
4-Terphenyl-d14	61		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-22
 Client ID: FB-072522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:45
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/27/22 09:23
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
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Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	61		15-120
4-Terphenyl-d14	69		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/26/22 10:54
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 07/26/22 00:31

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 10,18 Batch: WG1667245-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	95		25-120
Phenol-d6	95		10-120
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	93		30-120
2,4,6-Tribromophenol	125		10-136
4-Terphenyl-d14	104		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/27/22 08:50
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 21-22 Batch: WG1667697-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	64		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10,18 Batch: WG1667245-2 WG1667245-3								
Naphthalene	70		62		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	78		68		25-120
Phenol-d6	78		67		10-120
Nitrobenzene-d5	71		59		23-120
2-Fluorobiphenyl	77		69		30-120
2,4,6-Tribromophenol	103		98		10-136
4-Terphenyl-d14	81		77		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 21-22 Batch: WG1667697-2 WG1667697-3								
Naphthalene	80		74		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	76		67		23-120
2-Fluorobiphenyl	78		74		15-120
4-Terphenyl-d14	81		76		41-149

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-01
 Client ID: PB-253-19-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 09:50
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-02
 Client ID: PB-253-19-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-03

Date Collected: 07/25/22 10:10

Client ID: PB-253-19-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-04

Date Collected: 07/25/22 10:20

Client ID: PB-253-19-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-05

Date Collected: 07/25/22 11:00

Client ID: PB-253-18-0.0-0.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-06
 Client ID: PB-253-18-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-07

Date Collected: 07/25/22 11:20

Client ID: PB-253-18-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-08

Date Collected: 07/25/22 11:30

Client ID: PB-253-18-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-09
 Client ID: PB-253-1R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-11
 Client ID: PB-253-1R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-12

Date Collected: 07/25/22 12:30

Client ID: PB-253-1R-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-13

Date Collected: 07/25/22 13:00

Client ID: PB-253-20-0.0-0.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-14
 Client ID: PB-253-20-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-15

Date Collected: 07/25/22 13:20

Client ID: PB-253-20-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-16
 Client ID: PB-253-20-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-18
 Client ID: PB-253-21-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,06,09-11,14,18 QC Batch ID: WG1667349-1 QC Sample: L2239633-03 Client ID: DUP Sample						
Solids, Total	97.7	97.4	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01,03,05,07,12-13,15 QC Batch ID: WG1670186-1 QC Sample: L2239626-01 Client ID: PB-253-19-0.0-0.5						
Solids, Total	82.6	82.1	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 04,08,16 QC Batch ID: WG1670377-1 QC Sample: L2239626-04 Client ID: PB-253-19-14.0-14.5						
Solids, Total	82.6	83.1	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-01A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-01B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-01C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-01D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-02A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-02B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-02C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-02D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-03A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-03B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-03C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-03D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-04A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-04B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-04C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-04D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-05A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-05B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-05C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-05D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-06A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-06B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-06C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-06D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-07A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-07B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-07C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-07D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-08A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-08B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-08C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-08D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-09A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-09B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-09C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-09D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		TS(7)
L2239626-09E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-10A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-10B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-10C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-10D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-10E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2239626-11A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-11B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-11C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-11D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-12A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-12B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-12C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-12D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-13A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-13B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-13C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-13D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-14A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-14B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-14C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 10:11	PA-8260HLW(14)
L2239626-14D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2239626-15A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-15B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 10:11	PA-8260-BTEX(14)
L2239626-15C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-15D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-16A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260-BTEX(14)
L2239626-16B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-16C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-16D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2239626-17A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-17B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-17C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-17D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-17E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-18A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-18B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-18C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-18D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		TS(7)
L2239626-18E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2239626-19A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-19B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-19C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-19D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-19E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-20A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-20B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-20C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-20D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-20E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-21A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-21E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-22A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22D	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-22E	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-23A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-23B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18509

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hilcooglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
39626-01	PB-253-14-00-0.5	7/25	0950	S	TS
02	PB-253-14-40-4.5		1000		
03	PB-253-14-60-6.5		1010		
04	PB-253-14-140-14.5		1020		
05	PB-253-18-00-0.5		1100		
06	PB-253-18-40-4.5		1110		
07	PB-253-18-60-6.5		1120		
08	PB-253-18-140-14.5		1130		
09	PB-253-18-00-0.5		1200		
10	PB-253-18-40-4.5		1210		

Date Rec'd in Lab: 7/26/22

ALPHA Job #: L22391026

Report Information Data Deliverables

FAX EMAIL
 ADEs Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

ANALYTE	METHODS															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BENZENE (8260)																
NAPHTHALENE (8270)																

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

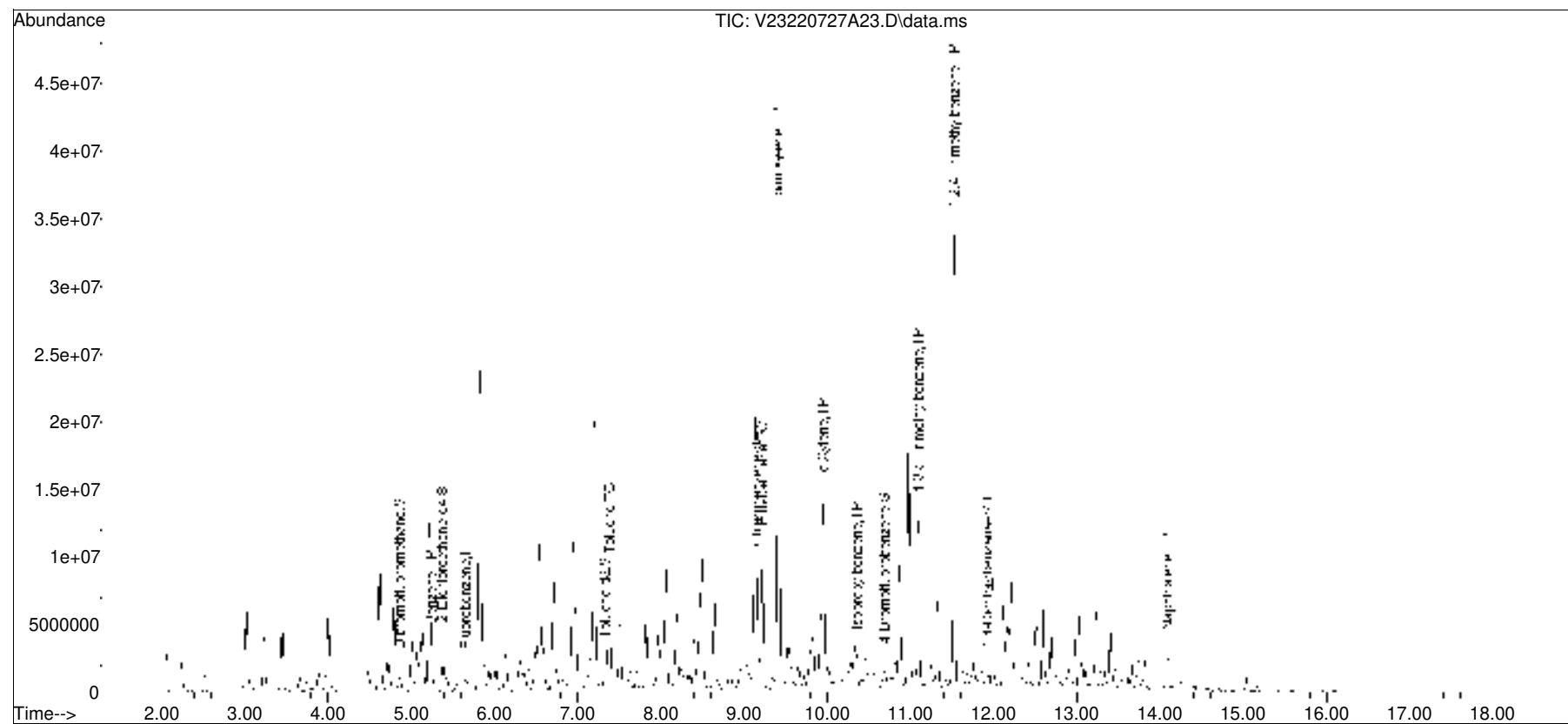
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220727A\
 Data File : V23220727A23.D
 Acq On : 27 Jul 2022 07:22 pm
 Operator : VOA123:LAC
 Sample : 12239626-02D, 31h, 5.95, 10, 0.050, , a, r2f
 Misc : WG1668518, ICAL19190
 ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 02 18:05:44 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jul 19 09:34:38 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list27A\V23220727A01.D•

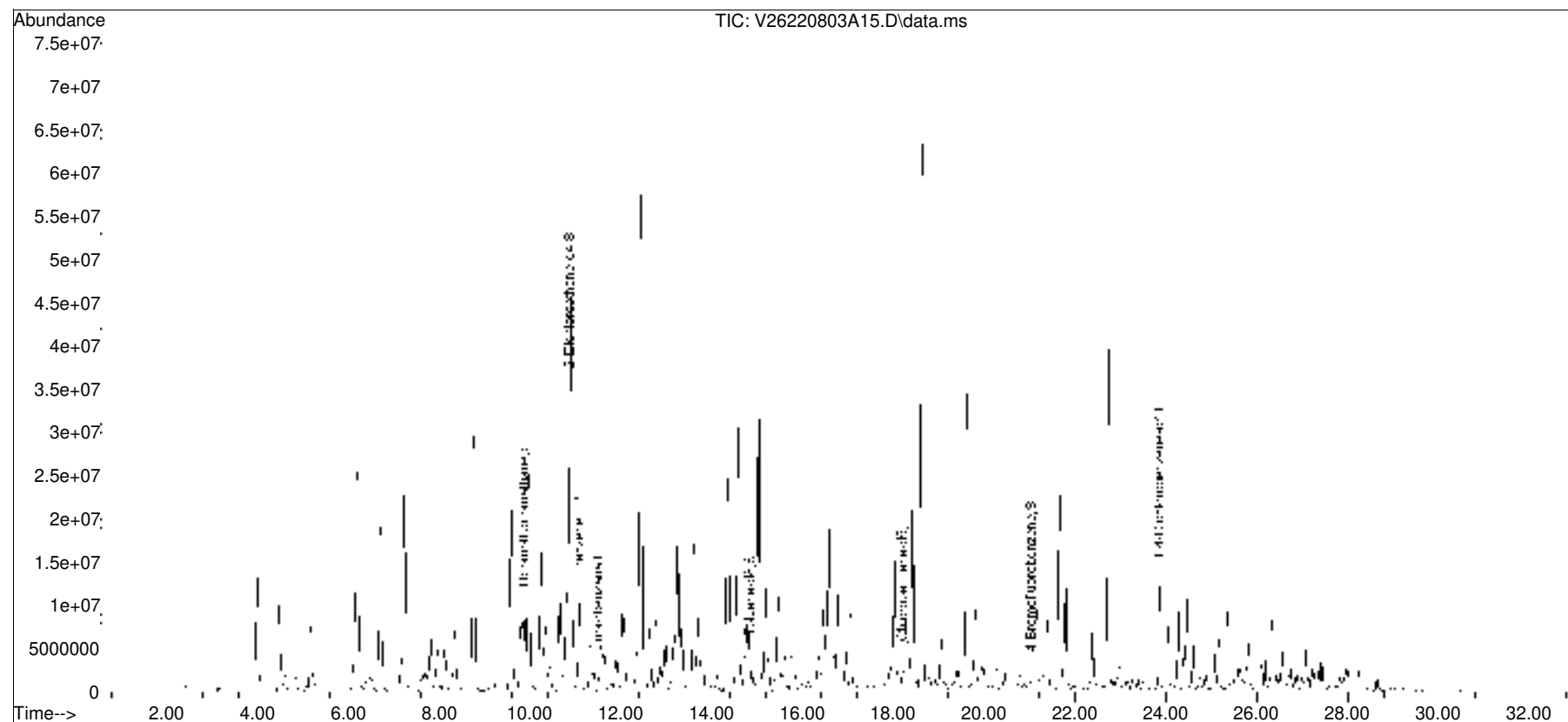


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA126\2022\220803A\
Data File : V26220803A15.D
Acq On : 03 Aug 2022 09:15 pm
Operator : VOA126:NLK
Sample : L2239626-03D, 31H, 4.40, 10, 0.05, , A, R2F
Misc : WG1671337, ICAL19172
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 04 12:29:10 2022
Quant Method : I:\VOLATILES\VOA126\2022\220803A\V126_220713P_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 14 06:55:13 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220803A\V26220803A02.D•

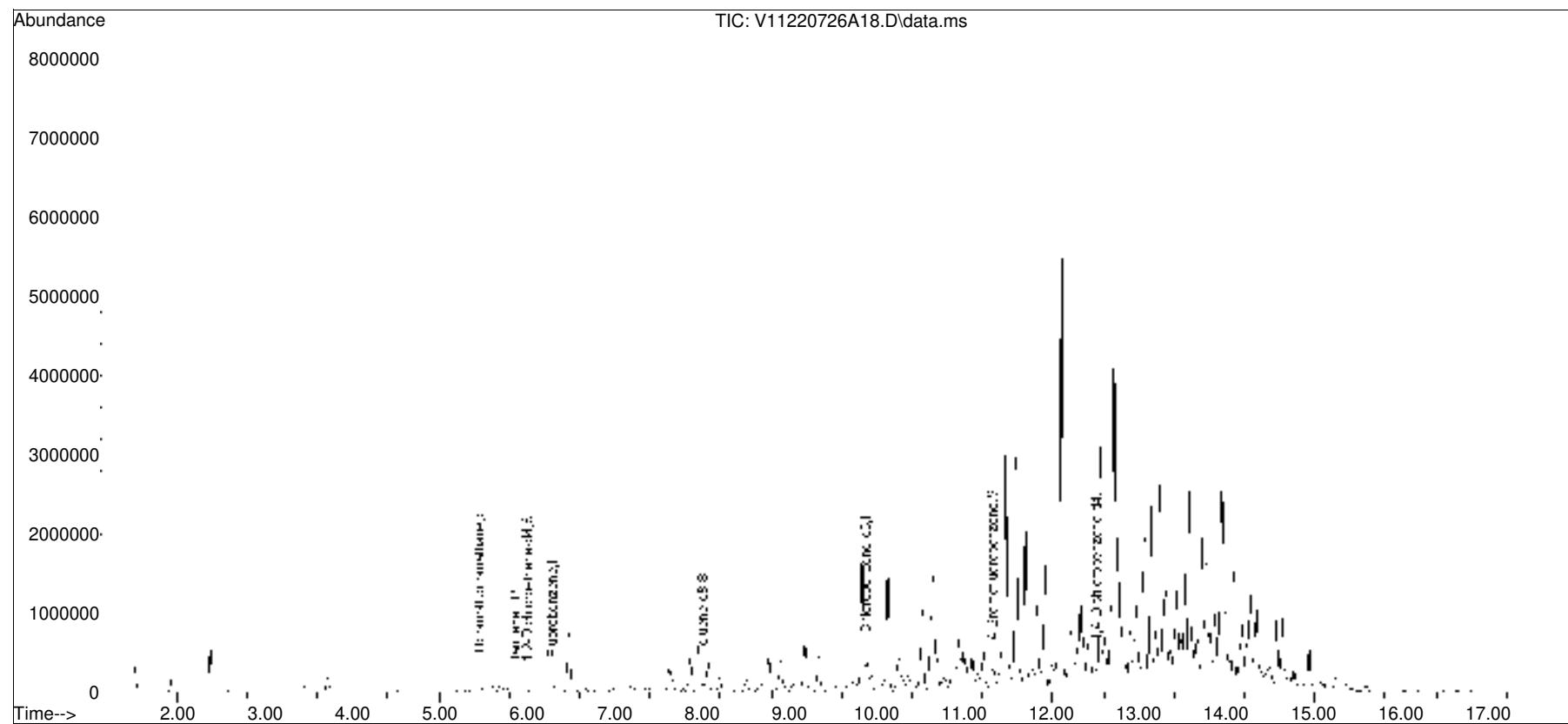


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220726\
Data File : V11220726A18.D
Acq On : 26 Jul 2022 10:34 pm
Operator : VOA111:NLK
Sample : L2239626-09,31,5.89,5,,B,R2F
Misc : WG1668055,ICAL19072
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 27 09:56:59 2022
Quant Method : I:\VOLATILES\VOA111\2022\220726A\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220726A\V11220726A01.D•

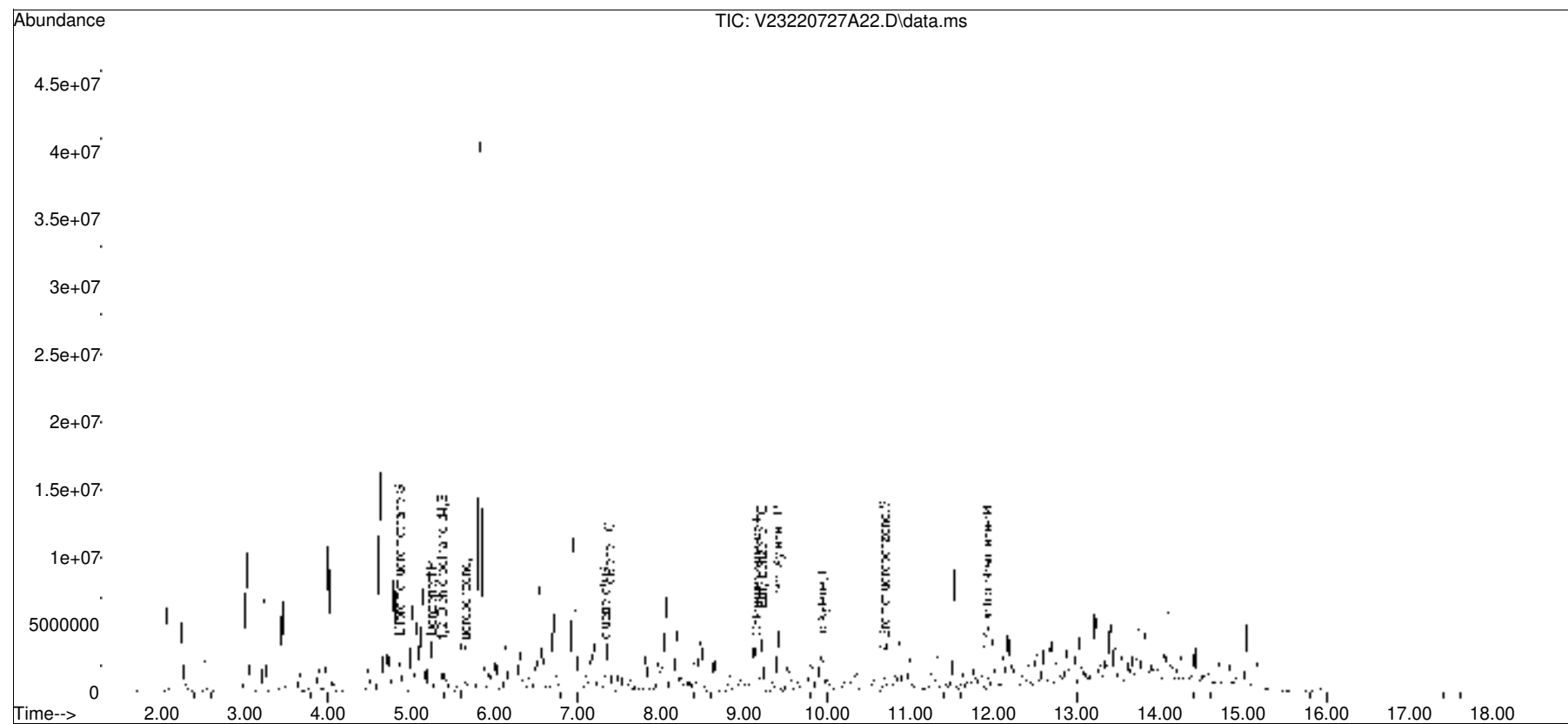


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220727A\
Data File : V23220727A22.D
Acq On : 27 Jul 2022 06:56 pm
Operator : VOA123:LAC
Sample : 12239626-10D,31h,6.22,5,0.050,,a,r2f
Misc : WG1668518,ICAL19190
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 27 21:20:46 2022
Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jul 19 09:34:38 2022
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List20727A\V23220727A01.D•

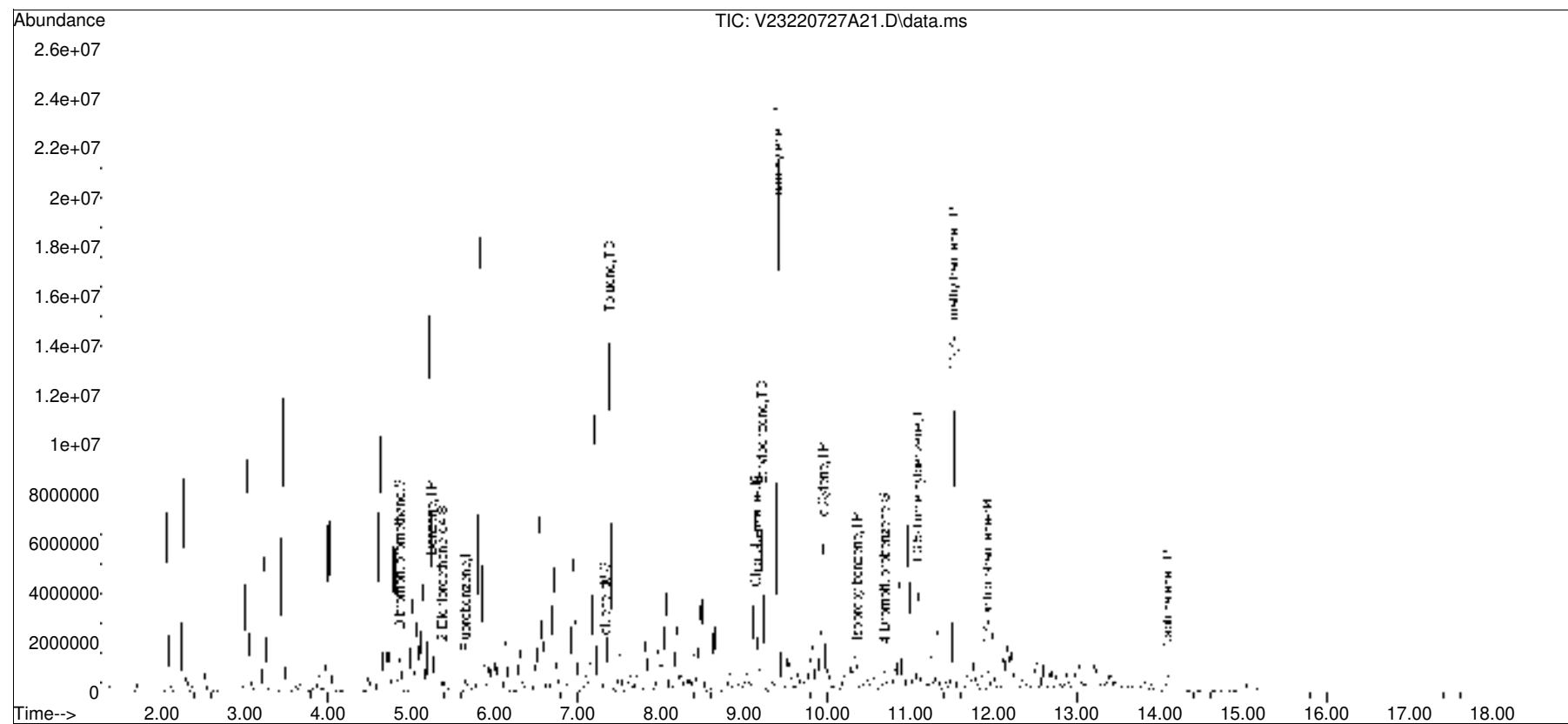


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220727A\
Data File : V23220727A21.D
Acq On : 27 Jul 2022 06:30 pm
Operator : VOA123:LAC
Sample : 12239626-14D, 31h, 5.10, 10, 0.010, , a, r2f
Misc : WG1668518, ICAL19190
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 02 18:12:45 2022
Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jul 19 09:34:38 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list27A\V23220727A01.D•





ANALYTICAL REPORT

Lab Number:	L2239891
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/09/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239891-01	PB-253-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 09:00	07/26/22
L2239891-02	PB-253-02R-4.5-5.0	SOIL	PHILADELPHIA, PA	07/26/22 09:10	07/26/22
L2239891-03	PB-253-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 09:15	07/26/22
L2239891-04	PB-253-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 09:20	07/26/22
L2239891-05	PB-253-22-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 10:00	07/26/22
L2239891-06	PB-253-22-4.0-4.5	SOIL	PHILADELPHIA, PA	07/26/22 10:10	07/26/22
L2239891-07	PB-253-22-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 10:20	07/26/22
L2239891-08	PB-253-22-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 10:30	07/26/22
L2239891-09	PB-253-05R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 11:10	07/26/22
L2239891-10	PB-253-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 11:20	07/26/22
L2239891-11	PB-253-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 11:25	07/26/22
L2239891-12	FB-072622	WATER	PHILADELPHIA, PA	07/26/22 12:00	07/26/22
L2239891-13	TB-072622	WATER	PHILADELPHIA, PA	07/26/22 00:00	07/26/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Case Narrative (continued)

Report Submission

August 09, 2022: This final report includes the results of all requested analyses.

August 02, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2239891-03: The sample was not appropriately preserved for the analysis of Volatile Organics-High Level. The methanol was not covering the soil. Please note, this vial was not utilized for analysis.

L2239891-11: The collection date and time on the chain of custody was 26-JUL-22 11:25; however, the collection date/time on the container label was 26-JUL-22 11:30. At the client's request, the collection date/time is reported as 26-JUL-22 11:25.

L2239891-11: At the client's request, this sample was placed on hold.

L2239891-13 (Trip Blank): Headspace was noted in the sample containers submitted for PA Volatile Organics - EPA 8260C. The analysis was performed at the client's request.

Volatile Organics


L2239891-02 and -03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (189% and 139%, respectively); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2239891-06D: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 08/09/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 09:32
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-02
 Client ID: PB-253-02R-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/22 17:58
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
---	--	--	--	--	--	--

Benzene	ND		mg/kg	0.00053	0.00017	1
---------	----	--	-------	---------	---------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	189	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-03
 Client ID: PB-253-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:15
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/22 17:38
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	0.00020	J	mg/kg	0.00047	0.00016	1
---------	---------	---	-------	---------	---------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 10:50
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

Benzene	0.050		mg/kg	0.031	0.010	1
---------	-------	--	-------	-------	-------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-12
 Client ID: FB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 12:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/29/22 14:18
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-13
 Client ID: TB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 00:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/29/22 14:39
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06 Batch: WG1668725-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1668729-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/29/22 08:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12-13 Batch: WG1669812-5					
Benzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/22 11:49
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1669976-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06 Batch: WG1668725-3 WG1668725-4								
Benzene	99		97		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	78		76		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	102		98		70-130
Dibromofluoromethane	85		84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1668729-3 WG1668729-4								
Benzene	99		97		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	78		76		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	102		98		70-130
Dibromofluoromethane	85		84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1669812-3 WG1669812-4								
Benzene	100		110		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		109		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	98		101		70-130
Dibromofluoromethane	98		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1669976-3 WG1669976-4								
Benzene	92		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		101		70-130
Toluene-d8	101		99		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	94		94		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/28/22 17:55
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/27/22 18:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.052	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06 D
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 08/02/22 00:08
 Analyst: SLR
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/27/22 18:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	20.		mg/kg	1.9	0.24	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	92		23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	94		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-12
 Client ID: FB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 12:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/29/22 13:31
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/29/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	75		15-120
4-Terphenyl-d14	75		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/28/22 10:50
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 07/27/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,06 Batch: WG1668072-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	80		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	80		30-120
2,4,6-Tribromophenol	84		10-136
4-Terphenyl-d14	87		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/29/22 12:42
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/29/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 12 Batch: WG1668826-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	72		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,06 Batch: WG1668072-2 WG1668072-3								
Naphthalene	82		83		40-140	1		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	87		86		25-120
Phenol-d6	87		85		10-120
Nitrobenzene-d5	78		74		23-120
2-Fluorobiphenyl	89		88		30-120
2,4,6-Tribromophenol	94		90		10-136
4-Terphenyl-d14	87		87		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 12 Batch: WG1668826-2 WG1668826-3								
Naphthalene	67		72		40-140	7		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	63		71		23-120
2-Fluorobiphenyl	68		72		15-120
4-Terphenyl-d14	68		72		41-149

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-02
 Client ID: PB-253-02R-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-03
 Client ID: PB-253-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:15
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,06 QC Batch ID: WG1668005-1 QC Sample: L2239891-01 Client ID: PB-253-02R-0.0-0.5						
Solids, Total	84.4	84.5	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239891**Project Number:** 200.00135.006**Report Date:** 08/09/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-01A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-01B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-01C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-01D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		TS(7)
L2239891-01E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		PA-PAH(14)
L2239891-02A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-02B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-02C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-02D	Plastic 2oz unpreserved for TS	B	NA		2.5	Y	Absent		TS(7)
L2239891-03A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-03B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-03C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-03D	Plastic 2oz unpreserved for TS	B	NA		2.5	Y	Absent		TS(7)
L2239891-03X	Vial MeOH preserved split	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-04A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-04B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-04C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-04D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-04E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-05A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-05B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-05C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239891**Project Number:** 200.00135.006**Report Date:** 08/09/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-05D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-05E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-06A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-06B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-06C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-06D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		TS(7)
L2239891-06E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		PA-PAH(14)
L2239891-07A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-07B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-07C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-07D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-07E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-08A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-08B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-08C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-08D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-08E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-09A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-09B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-09C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-09D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-09E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-10A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-10B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-10C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-10D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-10E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-11A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:08092209:05
Lab Number: L2239891
Report Date: 08/09/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-11B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-11C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-11D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-11E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-12A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12C	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12D	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2239891-12E	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2239891-13A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-13B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY PAGE 1 OF 2



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: **5-DAY⁴** Time:

Westborough, MA Mansfield, MA
 TEL: 508-858-0220 TEL: 508-837-9300
 FAX: 508-858-0193 FAX: 508-872-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and ljeray@hikoglobal.com

Date Rec'd in Lab: **7/27/22**

ALPHA Job #: **L2239891**

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEX Add'l Deliverables

Same as Client info PG #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

BENZENE (8260)

NAPHTHALENE (8270)

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL PARTICULATES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS														Sample Specific Comments	
		Date	Time			1	2	3	4	5	6	7	8	9	10	11	12	13	14		
39891-01	PB-253-02R-00-0.5	7/26	0900	S	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
02	PB-253-02R-4.5-5.0		0910			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
03	PB-253-02R-6.0-6.5		0915			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
04	PB-253-02R-14.0-14.5		0920			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
05	PB-253-22-00-0.5		1000			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
06	PB-253-22-4.0-4.5		1010			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
07	PB-253-22-6.0-6.5		1020			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
08	PB-253-22-14.0-14.5		1030			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
09	PB-253-05R-00-0.5		1110			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
10	PB-253-05R-6.0-6.5		1120			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD

Container Type: _____ Preservative: _____

Requisitioned By: <i>[Signature]</i>	Date/Time: 7/26 15:02	Received By: <i>[Signature]</i>	Date/Time: 7/26/22 15:02
<i>[Signature]</i>	7/26/22	<i>[Signature]</i>	7/26/22
<i>[Signature]</i>	7/26 21:00	<i>[Signature]</i>	7/26/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

[Signature] 7/27/22 0255
 7/27/22 0255



ANALYTICAL REPORT

Lab Number:	L2240449
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/02/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2240449-01	PB-253-02R-6.0-6.5-1	SOIL	PHILADELPHIA, PA	07/28/22 13:30	07/28/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The client ID was specified by the client.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 08/02/22

ORGANICS

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

SAMPLE RESULTS

Lab ID: L2240449-01
 Client ID: PB-253-02R-6.0-6.5-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/28/22 13:30
 Date Received: 07/28/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/29/22 21:01
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/29/22 04:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/29/22 20:37
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/29/22 04:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1668821-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	77		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2240449

Project Number: 200.00135.006

Report Date: 08/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1668821-2 WG1668821-3								
Naphthalene	74		72		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	74		76		30-120
4-Terphenyl-d14	78		78		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

SAMPLE RESULTS

Lab ID: L2240449-01
Client ID: PB-253-02R-6.0-6.5-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/28/22 13:30
Date Received: 07/28/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/29/22 07:18	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1668838-1 QC Sample: L2240262-36 Client ID: DUP Sample						
Solids, Total	81.4	81.6	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2240449**Project Number:** 200.00135.006**Report Date:** 08/02/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information**Container ID** **Container Type**

L2240449-01A Glass 250ml/8oz unpreserved

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
A	NA		4.9	Y	Absent		TS(7),PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2240449

Project Number: 200.00135.006

Report Date: 08/02/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Appendix F

Field Notes and Boring Logs



Location PCS REFINERY Date 12/7
Project / Client AST CLOSURE SAMPLING

0800 TYLER SHORT + TPI onsite
 OBJECTIVE CONTINUE AST SAMPLING
 0830 TPI NEEDS TO REFUEL TRUCK + RIG
 0900 COMMENCE DRILLING PB-885-22
 0920 COMPLETE DRILLING PB-885-23
 0940 COMPLETE DRILLING PB-885-26
 1000 COMPLETE DRILLING PB-885-21
 1030 COMPLETE DRILLING PB-885-06
 1050 BOW CLEAN-UP OF SITE
 1130 REMOVED TO TR-253, TPI UNLOADS
 1200 COMMENCE DRILLING 253-01
 1210 REFUSAL @ 3 FT; OFF-SET + RE DRILL
 1230 COMPLETE DRILLING 253-01
 1230 COMMENCE DRILLING 253-02
 1300 COMPLETE DRILLING 253-03
 1330 COMPLETE DRILLING 253-04
 1350 COMPLETE DRILLING 253-05
 1400 COMPLETE DRILLING 253-06
 1410 COMPLETE DRILLING 253-07
 1420 COMPLETE DRILLING 253-08
 1430 COMPLETE DRILLING 253-09
 1440 COMPLETE DRILLING 253-10
 1500 COLLECT FIBED BLANK
 1630 MEET ALPHEA
 1645 LEAVES SITE

Location PCS REFINERY Date 12/7
Project / Client AST CLOSURE SAMPLING

Time	SAMPLE	DESC	PID	DEPTH
			0.0	3-3.5
0910	885-22	Brown SILT w/FINE SAND	0.0	3-3.5
0920	885-23	Brown SANDY FILL w/STONE	0.0	3-3.5
0945	885-26	Brown SANDY FILL w/STONE	0.0	3-3.5
1010	885-21	Brown SANDY FILL w/STONE	0.0	3-3.5
1040	885-06	Brown SANDY FILL w/STONE	0.0	3-3.5
1230	253-01	Brown/BLACK SILT -/SAND	43.2	4.5-5.0
1300	253-02	Brown SILT w/SAND	30.5	4.0-5.0
1310	253-03	BLACK/GRAY FINE SAND w/ASH	1.0-1.5	3.0-3.2
1340	253-04	Brown/BLACK SAND w/SILT	3.5	1.7
1400	253-05	Brown/GRAY SILT	26.8	4.0-4.5
1410	253-06	Brown FINE SAND	13.2	3-3.5
1420	253-07	BLACK/BROWN SAND w/SILT	30.9	3-3.5
1430	253-08	Brown SILT	0.0	3-3.5
1440	253-09	BLACK/BROWN ASH, SAND FILL	25.1	3.5-4.0
1450	253-10	Brown SILT w/FINE SAND	0.0	3-3.5

Location PES REFINERY
Project / Client AST CLOSURE Date 12/8
SAMPLING

0800 TOWER SHORT (RAUSON) + TPI
OBJECTIVE CONTINUE SAMPLING TK-253 ON 311
0845 DRILLER (MIKE) BACKFILES BORINGS
0850 COMMENCE DRILLING 253-11
0900 COMPLETE DRILLING 253-11
0910 COMPLETE DRILLING 253-12
0930 COMPLETE DRILLING 253-13
0940 COMPLETE DRILLING 253-14
0950 COMPLETE DRILLING 253-15
1000 COMPLETE DRILLING 253-16
1020 COMPLETE DRILLING 253-17
1030 TPI BEGINS LOADS RIL AUTO TRAILER

1110 RELOCATE TO TK 883
1130 COMMENCE DRILLING 883-08
1150 COMPLETE DRILLING 883-09
1210 COMPLETE DRILLING 883-10
1225 COMPLETE DRILLING 883-11
1245 COMPLETE DRILLING 883-12
1255 COMPLETE DRILLING 883-13
1305 COMPLETE DRILLING 883-14
1315 COMPLETE DRILLING 883-15
1320 COMPLETE DRILLING 883-16
1330 COMPLETE DRILLING 883-17
1340 COMPLETE DRILLING 883-18

Location PES REFINERY
Project / Client AST CLOSURE Date 12/8
SAMPLING

TIME	SAMPLE	DESC	PID.	DEPTH
0910	253-11	SANDY FILL / GRAVEL	32.7	1.0-1.5
0920	253-12	SANDY FILL / GRAVEL	26.2	1.0-1.5
0935	253-13	SANDY FILL / GRAVEL	47.0	1.0-1.5
0950	253-14	SANDY FILL / GRAVEL	22.0	0.5-1.0
1000	253-15	GRAY / BROWN SILT	0.0	3-3.5
1015	253-16	SANDY FILL, ASH, DIRTY GRAVEL	15.2	0-0.5
1030	253-17	SANDY FILL, ASH, DIRTY	30.7	2.0-2.5
1135	883-08	BROWN / GRAY SILT w/ FINE SAND	10.5	3-3.5
1155	883-09	BLACK / GRAY SANDY FILL	30.9	4.0-4.5
1215	883-10	BLACK / BROWN / GRAY SILT	23.7	3.0-3.5
1245	883-11	BLACK / BROWN SILT	200.2	3.5-4.0
1300	883-12	LIGHT BROWN SILT	0.0	3.0-3.5
1310	883-13	BLACK / GRAY SILT	43.3	4.5-5.0
1320	883-14	GRAY SILT	0.0	3-3.5
1325	883-16	BROWN SILT w/ FINE SAND	5.7	3-3.5
1340	883-17	BROWN FINE SAND / SILT	0.0	3-3.5
1350	883-18	BROWN FINE SAND / SILT	0.0	3-3.5
1400	883-19	BLACK SANDY FILL w/ SILT	72.8	4.5-5.0
1405	883-22	GRAY SILT w/ CLAY	0.0	3-3.5
1415	883-23	BLACK SANDY FILL w/ SILT	62.3	4.5-5.0
1430	883-24	GRAY / BROWN w/ SILT	0.0	3-3.5

607-24

Location PCS REFINERY

Date 12/8

Project / Client AST CLOSURE SAMPLING

1345	COMPLETE DRILLING	883-19
1350	COMPLETE DRILLING	883-22
1400	COMPLETE DRILLING	883-23
1415	COMPLETE DRILLING	883-24
1430 ⁴⁰ TS	COLLECT FB-1	
1438 ⁴⁵ TS	COLLECT FB-2	

Location

Project / Client

AST CLOSURE - TG 04 - 07

TANK GROUP 05 SAMPLING
TANK 833

PB-833-01	DESCRIPTION	PID	SAMPLE DEPTH
	1.0' Brown SANDY FILL	0.0	
	2.0'	0.0	
0845	3.0'	0.0	3.0-3.5
	4.0'	0.0	
	5.0'	0.0	

02	DESCRIPTION	PID	SAMPLE DEPTH
	1.0' Brown SILTY FILL	0.0	
	2.0'	0.0	
	3.0'	0.0	2
0855	4.0'	0.0	3.0-3.5
	5.0'	0.0	

03	DESCRIPTION	PID	SAMPLE DEPTH
	1.0' SAME	0.0	
	2.0'	0.0	
	3.0'	0.0	
0900	4.0'	0.0	3.0-3.5
	5.0'	0.7	

04	DESCRIPTION	PID	SAMPLE DEPTH
	1.0' SAME	0.0	
	2.0'	0.0	
	3.0'	0.3	3.0-3.5
0905	4.0'	0.0	in the Rain

PB-833 - 05

DESC.

PID

S.D.

1.0'

BROWN SANDY FILL

12.2

0910

2.0'

14.0

2.0-2.5

3.0'

7.2

4.0'

9.8

5.0'

10.4

06

1.0'

SAME

1.9

2.0'

2.5

3.0'

11.7

4.0'

13.0

0920

5.0'

17.4

4.5-5.0

07

1.0'

SAME

0.0

2.0'

0.0

0930

3.0'

0.0

3.0-3.5

4.0'

0.0

5.0'

0.0

08

1.0'

SAME

0.0

2.0'

0.0

940

3.0'

0.0

3.0-3.5

4.0'

0.0

5.0'

0.0

Location Pos Refinery

Date 7/5

Project / Client _____

PB-833-09	DESCRIPTION	P70	SID
10'	BLOW SILTY FILL	0.0	
20'	↓	0.0	
30'		0.0	
0945 40'		0.0	3.0-3.5'
50'		0.0	
10			
10'	BLOW SILTY FILL	29.2	
20'	↓	45.7	
30'		39.2	
40'		81.8	
0955 50'		90.7	4.5-5.0'
11			
10'	BLOW SILTY FILL	0.0	
20'	↓		
30'			
1000 40'			3.0-3.5
50'			
12			
10'	BLOW SILTY FILL	0.0	
20'	↓	1.0	
30'		1.2	
1010 40'		6.3	4.0-4.5
50'		8.0	

Location

PES REFINERY

Date

7/5

Project / Client

Q33 - 113	DESCRIPTION	PID	SD
0-1.0'	Brown SILTY FILL	0.0	
1.0-2.0	↓	↓	
2.0-3.0			
1020 3.0-4.0			
4.0-5.0			
14			
1.0'	Brown SILTY FILL	0.0	
2.0'	↓	0.2	
1030 3.0'		1.2	3.0-3.5
4.0'		0.0	
5.0'	Brown / BLACK SILTY FILL	0.0	
15			
1.0'	Brown SANDY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
1040 4.0'		1.4	4.5-5.0'
5.0'	↓	0.0	
16			
1.0'	Brown SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	
5.0		0.0	4.0-4.5
5.0		0.0	

TK 836

PB-836-01

DESCRIPTION

PID

SD

1.0'

BROWN SILTY FILL

0.0

2.0'

0.0

1230

3.0'

0.7

3.0-3.5

4.0'

0.0

5.0'

0.0

836-02

1.0'

SAME

0.0

2.0'

0.0

1240

3.0'

0.0

3.0-3.5

4.0'

0.0

5.0'

0.0

836-03

1.0'

SAME

0.0

2.0'

0.0

1250

3.0'

0.0

3.0-3.5

4.0'

0.0

5.0'

0.0

836-04

1.0'

SAME

0.0

2.0'

0.0

1300

3.0'

0.0

3.0-3.5

4.0'

0.0

5.0'

0.0

Rite in the Rain

836-05	DESCRIPTION	PID	SAMPLE DEPTH
1.0'	Brown SANDY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
1330 4.0'		0.0	3.0-3.5
5.0'		0.0	

06	DESC	PID	SAMPLE DEPTH
1.0'	SAME	0.0	
2.0'	↓	0.0	
3.0'		0.0	
1340 4.0'		0.0	3.0-3.5
5.0'		0.0	

07	DESC	PID	SAMPLE DEPTH
1.0'	SAME	0.0	
2.0'	↓	0.0	
3.0'		0.0	
1350 4.0'		0.0	3.0-3.5
5.0'		0.0	

08	DESC	PID	SAMPLE DEPTH
1.0'	SAME	0.0	
2.0'	↓	0.0	
1400 3.0'		0.0	
4.0'		0.0	
5.0'		0.0	3.0-3.5

Project / Client Hi/co

SBS

800 Arrive Onsite. Move to tank

BB-821

ST = Sample Time D = Depth

PB-821-01	PID	Lithology
St: 900 D: 3-3.5	0.0 ↓	Brown Sandy SILT 0-5
PB-821-02		
St: 910 D: 3-3.5	0.0 ↓	Same as-01
PB-821-03		
St: 920 920 D: 3-3.5	0.0 ↓	Same as-01
PB-821-04		
St: 930 D: 3-3.5	0.0 ↓	Same as- 01
PB-821-05		
St: 940 D: 3-3.5	0.0 ↓	Same as- 01

Location PES

Date 7/5/22

Project / Client H/Co

SBS

PB-821-06	PID	Lithology
ST: 950	0.0	Brown Sandy SILT
D: 3-3.5	↓	0-5

PB-821-07	PID	Lithology
ST: 1000	0.0	Same as 06
D: 3-3.5	↓	

PB-821-08	PID	Lithology
ST: 1010	0.0	Same as 06
D: 3-3.5	↓	

PB-821-09	PID	Lithology
ST: 1020	0.0	Same as 06
D: 3-3.5	↓	

PB-821-10	PID	Lithology
ST: 1030	0.0	Same as 06
D: 3-3.5	↓	

Location PES

Date 7/5/22

Project / Client H/Co

SBS

PB-821-11	PID	Lithology
ST: 1040	0.0	Same as 06
D: 3-3.5	↓	

PB-821-12	PID	Lithology
ST: 1050	0.0	Same as 06
D: 3-3.5	↓	

PB-822-01	PID	Lithology
ST: 1200	0.0	Brown Sandy SILT
D: 3-3.5	↓	0-5

PB-822-02	PID	Lithology
ST: 1210	0.0	Same as 01
D: 3-3.5	↓	

PB-822-03	PID	Lithology
ST: 1220	0.0	Same as 01
D: 3-3.5	↓	

Location PES

Date 7/5/22

Project / Client Hi/Co

SBS

PB-822-04	PID	Lithology
S.T: 1230 D: 3-3.5	0.0 ↓	Same as 01
PB-822-05	0.0 ↓	Same as 01
S.T: 1240 D: 4-4.5	4ft 126.11 120.3 0.0	
PB-822-06	0.0 ↓	Same as 01
S.T: 1250 D: 3-3.5		
PB-822-07	0.0 ↓	Same as 01
S.T: 1300 D: 3-3.5		
PB-822-08	0 ↓	Same as 01
S.T: 1310 D: 3-3.5		
1329 → 1315		

Location PES

Date 7/5/22

Project / Client Hi/Co

SBS

PB-822-09	PID	Lithology
S.T: 1320 D: 3-3.5	0.0 ↓	Same as 01
PB-822-10	0.0 ↓	Same as 01
S.T: 1330 D: 3-3.5		
PB-822-11	0.0 ↓	Same as 01
S.T: 1340 D: 4-4.5	3.5 92.1 4.0 99.1 4.5 81.5 5 72.3	
PB-822-12	0.0 ↓	Same as 01
S.T: 1350 D: 3-3.5		
PB-822-13	0.0 ↓	Same as 01
S.T: 1400 D: 4.5-5	4.0 12.2 4.5 28.3 5 10.1	
FB-070522-1	1430	
FB-070522-2	1435	
FB-070522-3	1440	

836-09	DESCRIPTION	PID	SAMPLE DEPTH
--------	-------------	-----	--------------

1.0'	BROWN SANDY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
0930 4.0'		0.0	3.0-3.5
5.0'		0.0	

836-10

1.0'	BROWN SANDY FILL ↑	0.0	
2.0'		0.0	
3.0'		0.0	
940 4.0'		0.0	3.0-3.5
5.0'		0.0	

836-11

1.0'	BROWN SANDY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
950 4.0'		0.0	3.0-3.5
5.0'		0.0	

836-12

1.0'	BROWN SANDY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
100 4.0'		0.0	3.0-3.5
5.0'		0.0	

Project / Client _____

836-13	DESCRIPTION	PROB	SAMPLE DEPTH
10'	Brown SANDY FINE SILT do	0.0	
20'	↓	0.0	
30'		0.0	
1010 40'		0.0	3.0-3.5
50'		0.0	
<hr/>			
836-14			
10'	Brown SANDY FILL	0.0	
20'	↓	0.0	
30'		0.0	
1020 40'		0.0	3.0-3.5
50'		0.0	
<hr/>			
836-15			
10'	Brown SANDY FILL	0.0	
20'	↓	0.0	
30'		0.0	
1030 40'		0.0	3.0-3.5
50'		0.0	
<hr/>			
835-01			
10	Brown SILTY SAND	0.0	
20'	↓	2.3	
30'		4.9	
40'		2.1	
1130 50'		8.7	4.0-4.5

	DESCRIPTION	LPID	SAMPLE DEPTH
<u>B35-02</u>			
1.0'	GRAY/BROWN SILTY FILL	0.0	
2.0'	↓	0.6	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
11.40			
1.0'			
5.0'			
<u>B35-03</u>			
1.0'	Brown SILTY FILL	0.0	
2.0'	↓	0.7	
3.0'		1.2	
4.0'		0.9	
5.0'		3.2	4.5-5.0
1.50	GRAY/BROWN SILT		
<u>B35-04</u>			
1.0'	Brown SILTY/SAND	0.0	
2.0'	↓	25.6	2.0-2.5
3.0'		10.2	
4.0'		0.0	
5.0'		0.0	
12.00			
2.0'			
3.0'			
4.0'			
5.0'			
<u>B35-05</u>			
1.0'	Brown/GRAY SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
2.10			
4.0'			
5.0'			

Project / Client _____

835-06	DESCRIPTION	PIED	DEPTH	SAMPLE
	Brown SANDY FILL	0.0		
		0.0		
		0.0		
1210		0.0	3.0-3.5	
		0.0		
<hr/>				
835-07	BROWN SANDY FILL	0.0		
		0.0		
		0.0		
1230		0.0	3.0-3.5	
		0.0		
<hr/>				
835-08	BROWN SANDY FILL	0.0		
		0.0		
		0.0		
1240		0.0	3.0-3.5	
		0.0		
<hr/>				
835-09	BROWN / GRAY SANDY FILL	0.0		
		0.9		
1250		22.3	2.5-3.0	
		7.2		
		2.5		

DUP-32
35

	DESCRIPTION	PIV	SAMPLE DEPTH
<u>835-10</u>			
1.0	Brown SANDY FILL	0.0	
2.0	↓	0.0	
3.0		0.0	
4.0		0.0	3.0 - 3.5
5.0		0.0	
1300			
<u>835-11</u>			
1.0	Brown SILTY FILL	0.0	
2.0	↓	10.9	
3.0		5.6	
4.0		12.3	
5.0		50.8	4.5 - 5.0
310			
<u>835-12</u>			
1.0'	Brown SAND w/ GRAVEL	0.8	
2.0	↓	14.5	
3.0		12.3	
4.0		13.2	
5.0		109.2	4.5 - 5.0
1320	GRAY SILT		
<u>835-13</u>			
1.0	Brown/LEAN SILTY FILL	0.0	
2.0	↓	0.0	
3.0		0.0	
4.0		0.0	3.0 - 3.5
5.0		0.0	
1330			

Project / Client _____

835-14	DESCRIPTION	PID	SAMPLE DEPTH
1.0'	BROWN SANDY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
1340 4.0'		0.0	3.0-3.5
5.0'		0.0	
<hr/>			
835-15			
1.0'	BROWN SILTY FILL ↓	0.0	
2.0		0.0	
3.0		0.0	
1340 4.0		0.0	3.0-3.5
5.0		0.0	
<hr/>			
835-16			
1.0		2.9	
1345 2.0		5.6	1.0-1.5
3.0		0.0	
4.0		0.0	
5.0		0.0	
<hr/>			
835-17			
1.0	BROWN/GRAY SILTY FILL ↓	0.0	
2.0		2.2	
3.0		0.1	
4.0		3.3	
1350 5.0		8.9	4.0-4.5

Location YCS KETINEZY Date 7/6

Project / Client _____

835-18	DESCRIPTION	PID	SAMPLE DATE
1.0	Brown SANDY FILL	0.0	
2.0	↓	0.0	
3.0		0.0	
355 4.0		0.0	3.0-3.5
5.0		0.0	

Project / Client Hilco
SBS

800	Cont.	borings on Tank 822	
		PID	Lithology
PB-822-14			
T-930	0.0		Brown Sandy SILT 0-5
D-3-3.5	↓		
PB-822-15			
T-940	0.0		Same as 14
D-3-3.5	↓		
PB-822-16			
T-950	0.0		Same as 14
D-3-3.5	↓		
PB-822-17			
T-1000	0.0		Same as 14
D-3-3.5	↓		
PB-822-18			
T-1010	0.0		Same as 14
D-3-3.5	↓		

Project / Client Hilco
SBS

PB-822-19	PID	Lithology
T-1020	0.0	Same as 14
D-3-3.5	↓	
PB-822-20		
T-1030	0.0	Same as 14
D-3-3.5	↓	
*DUP-31		
PB-824-01	PID	Lithology
T-1100	0.0	Brown Sandy SILT 0-5
D-3-3.5	↓	
PB-824-02		
T-1110	0.0	Same
D-3-3.5	↓	
PB-824-03		
T-1120	0.0	Same
D-3-3.5	↓	

PES SBs

	Pi	Lithology
PB-824-04	0.0	Same
T - 1130	↓	
D - 3 - 3.5	↓	
PB-824-05	0.0	Same
T - 1140	↓	
D - 3 - 3.5	↓	
PB-824-06	0.0	Same
T - 1150	↓	
D - 3 - 3.5	↓	
PB-824-07	0.0	Same
T - 1200	↓	
D - 3 - 3.5	↓	
PB-824-08	0.0	Same
T - 1210	↓	
D - 3 - 3.5	↓	
PB-824-09	0.0	Same
T - 1220	↓	
D - 3 - 3.5	↓	

Location PCO Date 1/10/22

Project / Client H/CO

SBS

<u>PB-824-16</u>	<u>PID</u>	<u>Lithology</u>
<u>T-1330</u>	<u>0.0</u>	<u>Same</u>
<u>D-3-35</u>	↓	

<u>Field Blank Sample</u>	<u>Time</u>
<u>FB-070622-1</u>	<u>1400</u>
<u>FB-070622-2</u>	<u>1405</u>
<u>FB-070622-3</u>	<u>1410</u>

Location PES REFINERY Date 1/7

Project / Client _____

823-01	DESCRIPTION	PID	SAMPLE DEPTH
1.0	Brown SILTY FILL ↓	0.0	
2.0		0.0	
3.0		0.0	
4.0		0.0	
5.0		33.6	4.0-5.0
<hr/>			
823-02			AS
1.0	B SAME ↓	0.0	
2.0		0.0	
3.0		0.0	
4.0		0.0	3.0-3.5
5.0		0.0	
<hr/>			
03			
1.0'	SAME ↓	0.0	
2.0'		0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
<hr/>			
04			
1.0'	GRAY/Brown SILT	0.0	
2.0'		9.2	2.0-2.5
3.0'		0.0	
4.0'		0.0	
5.0'		0.0	
<hr/>			
05			
1.0'	GRAY/Brown SILT		
2.0'			
3.0'			
4.0'		22.9	4.5-5.0
5.0'			

Location

PES REFINERY

Project / Client

Date

7/7

823-06

DESCRIPTION

P10

SAMPLE DEPTH

1.0'

Brown SILTY FILL

0.0

2.0'

3.0'

0.0

4.0'

5.0'

0.0

3.0-3.5

07



0.0

1.0'

SAME

0.0

2.0'

3.0'

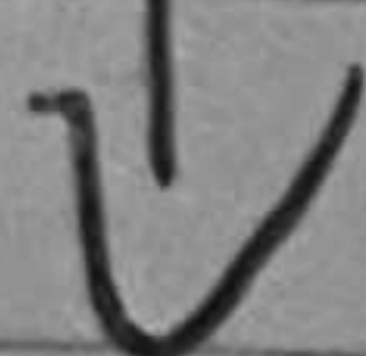
0.0

4.0'

5.0'

0.0

3.0-3.5



0.0

08

1.0'

SAME

0.0

2.0'

3.0'

0.0

4.0'

5.0'

0.0

3.0-3.5



0.0

09

1.0'

SAME

0.0

2.0'

3.0'

0.0

4.0'

5.0'

0.0

3.0-3.5



0.0

10

1.0'

SAME

0.0

2.0'

3.0'

4.0'

5.0'

0.0

0.0

0.0

0.0

3.0-3.5



Location

PCS REFINERY

Project / Client

Date 7/7

25-01	DESC.	PD	DATE SAMPLE
1.0'	Brown SANDY SILT ↓	0.0	
2.0'		10.2	1.0-1.5
3.0'		0.0	
4.0'		0.0	
5.0'		0.7	
02			
1.0'	Brown SANDY SILT ↓	0.0	
2.0'			
3.0'	Brown / CLAY SILT ↓	0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
03			
1.0'	CLAY SILTY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
04			
1.0'	CLAY SILTY FILL ↓	0.0	
2.0'		0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
05			
1.0'	Brown SILTY FILL ↓	1.2	
2.0'		0.0	
3.0'	CLAY SILT	0.0	
4.0'		12.5	4.5-5.0
5.0'			

Location _____

Project / Client _____

Borehole ID	DESCRIPTION	PID	SUMP LEVEL
06	Brown SANDY SILT ↓	0.0 0.0 0.0 0.0 0.0	3.0-3.5
07	SAME ↓	0.0 0.0 0.0 0.0 0.0	3.0-3.5
08	CRAN SILT ↓	0.0 0.0 0.0 0.0 0.0	3.0-3.5
09	BLACK SANDY FILL ↓ CRAN SILT ↓	0.9 15.6 0.0 0.0	1.0-1.5
10	Brown/CRAN SILT ↓	0.0 0.0 0.0 0.0 0.0	3.0-3.5

Location

Pos R-FINCH

Project / Client

Date

7/7

25-11	DESCRIPTION	PIID	SAMPLE DEPTH
1.0'	GRAY SILT		
2.0'	↓	17.8	
3.0'		11.9	
4.0'		52.3	3.5-4.0
5.0'			
12			22.8
1.0'	BROWN SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
13			0.0
1.0'	BROWN SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		1.6	
5.0'		5.4	4.0-4.5
14			
1.0'	BROWN/GRAY SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
15			
1.0'	BROWN/GRAY SILT	52.8	
2.0'	↓	132.7	2.5-3.0
3.0'		78.3	
4.0'		17.3	

Location

POS REFINERY

Date

7/7

93

Project / Client

825-16	DESCRIPTION	PID	SAMPLE DETAIL
1.0'	Brown/GRAY SILTY FILL	0.0	
2.0'	↓	0.0	
3.0'		0.0	3.0-3.5
4.0'			
5.0'		0.0	
17			
1.0'	GRAY SILT	6.2	
2.0'	↓	17.2	
3.0'		438.2	
4.0'			
5.0'		706.1	4.5-5.0
18			
1.0'	Brown CRACKLY FILL	17.3	
2.0'	↓	182.2	1.5-2.0
3.0'		5.6	
4.0'			
5.0'	Brown/GRAY SILT	7.1	
19			
1.0'	GRAY SILT	0.0	
2.0'	↓	38.1	
3.0'		223.8	
4.0'		898.1	4.0-4.5
5.0'			

Location PES

Date 7/7/22

Project / Client Hilco

SBS; Tank group 5

800 Arrive onsite; begin sampling

824.

ID	Time; Depth	Highest PID	Lithology
PB-824-01	900 3-3.5	⊗	0-5 Brown Sandy SILT
PB-824-02	910 3-3.5	⊗	
PB-824-03	920 3-3.5	⊗	
PB-824-04	930 3-3.5	⊗	
PB-824-05	940 3-3.5	⊗	
PB-824-06	950 3-3.5	⊗	
PB-824-07	1000 3-3.5	⊗	
PB-824-08	1010 3-3.5	⊗	
PB-824-09	1020 3-3.5	⊗	
PB-824-10	1030 4-4.5	19.3	
PB-824-11	1040 4-4.5	123.1	
PB-824-12	1050 3-3.5	⊗	
PB-824-13	1100 4-4.5	192.2	
PB-824-14	1110 4-4.5	191.9	
PB-824-15	1120 3-3.5	⊗	
PB-824-16	1130 3-3.5	⊗	
PB-824-17	1140 3-3.5	⊗	
PB-824-18	1150 3-3.5	⊗	
PB-824-19	1200 3-3.5	⊗	
PB-824-20	1210 3-3.5	⊗	
PB-824-21	1220 4-4.5	12.1	
PB-824-22	1230 3-3.5	⊗	

Location PES

Date 7/7/22

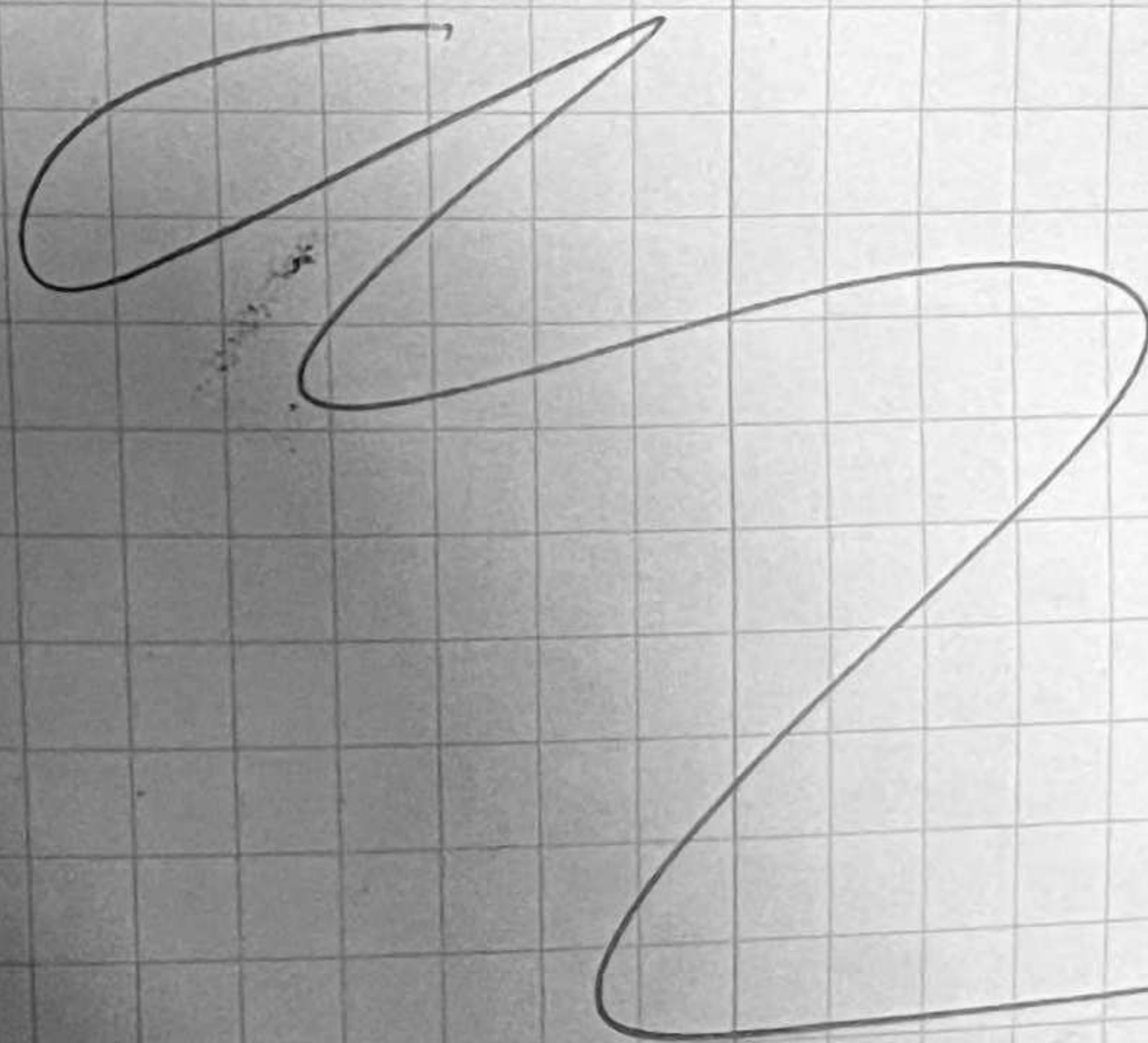
Project / Client Hilco

SBS; Tank Group 5

PB-824-23	1240 3-3.5	⊗	Brown Sandy SILT
PB-824-24	1250	⊗	
PB-824-25	1300	⊗	
PB-824-26	1310	⊗	

1400 Sample FB-070722-1
 1405 ↓ -2
 1410 ↓ -3

* DUP-34 Collect w/ PB-824-08



Project / Client _____

	DESCRIPTION	PID	SAMPLE DEPTH
826-01			
	1.0' TAN SILTY FILL / GRAVEL	0.0	
	2.0' ↓	0.0	
	3.0' ↓	0.0	
1000	4.0' ↓	0.0	3.0-3.5
	5.0' ↓	0.0	
826-02			
	1.0' TAN SILTY FILL / GRAVEL	0.0	
	2.0' ↓	0.0	
	3.0' ↓	0.0	
1030	4.0' ↓	0.0	3.0-3.5
	5.0' ↓	0.0	
826-03			
	1.0' TAN SILTY FILL w/ GRAVEL	0.0	
	2.0' ↓	0.0	
1100	3.0' ↓	0.0	
	4.0' ↓	0.0	3.0-3.5
	5.0' ↓	0.0	
826-04			
	1.0' TAN SILTY FILL w/ GRAVEL	0.0	
	2.0' ↓	0.0	
1130	3.0' ↓	0.0	3.0-3.5
	4.0' ↓	0.0	
	5.0' ↓	0.0	

826-05	DESCRIPTION	PID'	SAMPLE DEPTH
1.0'	TAN SILTY FILL ^{w/} GRAVEL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
			0.0
<hr/>			
826-06			
1.0'	TAN SILTY FILL ^{w/} GRAVEL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
			0.0
<hr/>			
826-07			
1.0'	TAN SILTY FILL ^{w/} GRAVEL	0.0	
2.0'	↓	0.0	
3.0'		0.0	
4.0'		0.0	3.0-3.5
5.0'		0.0	
			0.0
<hr/>			
826-08			
1.0'	BROWN SILT	0.0	
2.0'	↓	0.0	
3.0'		15.2	
4.0'		44.7	
		50.2	
		60.3	
1330 5.0'	BROWN SILT ^{w/} GRAY STAIN	85.6	4.5-5.0
		122.8	

PES REFINERY

7/13

NO	DESCRIPTION	PID	SAMPLE DEPTH	
826-09				
1.0'	Brown SILT ↓	0.0		
2.0'		0.0		
3.0'		0.0		
4.0'		0.0		
5.0'		0.0		
1100	Brown SILT w/GRAY STAIN	17.2		
5.0'		39.2		
		1156		
		2523	4.5-5.0	
826-10				
1.0'	TAN SILTY FILL w/LEAVES ↓	0.0		
2.0'		0.0		
3.0'		0.0		
4.0'		0.0		
5.0'		0.0		
			0.0	3.0-3.5
			0.0	

Location PESDate 7/15/22⁸⁵Project / Client HilcoSBS

PB-882-05	PID	Lithology
1	0.0	0-5 Brown/Tan Sandy
2		SILT
3		
4		
5	↓	3-3.5'
<hr/>		
04		
1	0.0	0-5 same
2		
3		
4		
5	↓	3-3.5'
<hr/>		
05		
1	0.0	0-5 same
2		
3		
4		
5	↓	3-3.5'
<hr/>		
06		
1	0.0	0-5 same
2		
3		
4		
5	↓	3-3.5'

NO.

Location PES

Project / Client Hilco

Date 7/13/22

07	PID	Lithology
1	0.0	Same 0-5 3-3.5'
2	↓	
3		
4		
5	↓	

08		
1	0.0	Brown Sandy SILT (same staining) 0-5 4.5-5 4.5-5.0'
2	0.0	
3	15.1 151.3 151.4	
4	130.6 131.8	
5	122.8 105.0	

09		
1	0.0	0-5 Brown Sandy SILT (staining @ 4-4.5) 4-4.5'
2	0.0	
3	12.1 139.3 200.5 222.0	
4	402.1 404.5	
5	500.2 322.2	

11		
1	0.0	0-5 Brown Sandy SILT 3-3.5'
2	↓	
3		
4		
5	↓	

Date 7/13/22

Location PES

Project / Client Hilco

12	PID	Lithology
1	0.0	Same as 11 3-3.5'
2	↓	
3		
4		
5	↓	

13		
1	0.0	Same as 11 3-3.5'
2	↓	
3		
4		
5	↓	

14		
1	588.0	Table content is crossed out with large X's
2		
3		
4		
5		

Completed

Location PES REFINERY Date 7/25
 Project / Client AST CLOSURE

0800 TYLER SHORT ON-SITE; COLLECT BOTTLEWORK

0815 MOBILIZE TO TK-253

0830 COMMENCE DRILLING

SAMPLE ID	SAMPLE DEPTH*	SAMPLE TIME	
PB-253-19-0.0-0.5	0.0-0.5	0950	HOLD
253-19-4.0-4.5	4.0-4.5	1000	
253-19-6.0-6.5	6.0-6.5	1010	HOLD
253-19-14.0-14.5	14.0-14.5	1020	HOLD
253-18-0.0-0.5	0.0-0.5	1100	HOLD
253-18-4.0-4.5	4.0-4.5	1110	
253-18-6.0-6.5	6.0-6.5	1120	HOLD
253-18-14.0-14.5	14.0-14.5	1130	HOLD
253-12-0.0-0.5	0.0-0.5	1200	HOLD (8270)
253-12-4.0-4.5	4.0-4.5	1210	
253-12-6.0-6.5	6.0-6.5	1220	
253-12-14.0-14.5	14.0-14.5	1230	HOLD (8260)
253-20-0.0-0.5	0.0-0.5	1300	HOLD
253-20-4.0-4.5	4.0-4.5	1310	
253-20-6.0-6.5	6.0-6.5	1320	HOLD
253-20-14.0-14.5	14.0-14.5	1330	HOLD
253-21-0.0-0.5	0.0-0.5	1400	HOLD
253-21-4.0-4.5	4.0-4.5	1410	*
253-21-6.0-6.5	6.0-6.5	1420	HOLD
253-21-14.0-14.5	14.0-14.5	1430	HOLD

*SEE BORING LOGS FOR LITHOLOGY

Location YES LEFWERN Date 7/26

Project / Client AST CLOSURE

0745	TRUCK SHORT	ON-SITE		
0800	Commence Drilling			
SAMPLE ID	SAMPLE DEPTH*		SAMPLE TIME	
253-02R-0.0-0.5	0.0-0.5		0900	
253-02R-4.5-5.0	4.5-5.0		0910	
253-02R-6.0-6.5	6.0-6.5		0915	
253-02R-14.0-14.5	14.0-14.5		0920	HOLD
253-22-0.0-0.5	0.0-0.5		1000	HOLD
253-22-4.0-4.5	4.0-4.5		1010	
253-22-6.0-6.5	6.0-6.5		1020	HOLD
253-22-14.0-14.5	14.0-14.5		1030	HOLD
253-05R-0.0-0.5	0.0-0.5		1110	HOLD
253-05R-6.0-6.5	6.0-6.5		1120	HOLD
253-05R-14.0-14.5	14.0-14.5		1125	HOLD
* SEE BORING LOGS FOR LITHOLOGY				
1130	COMPLETE SAMPLING TK-253; DECON + COMMENCE TDA SAMPLING			
<u>END</u>				

Location Pes REFINERY

Project / Client AST CLOSURE

Date 7/28

SAMPLE ID	SAMPLE DEPTH	SAMPLE TIME
253-022-6.0-6.5	6.0-6.5	1330

* SEE BOZING LOG FOR LITH-LOG

Location
Project / Client

Location PES REFINERY Date 8/9

Project / Client TC 05 DELINEATION

SAMPLE ID	SAMPLE DEPTH*	SAMPLE TIME
253-19-7.5-8.0	7.5 - 8.0'	1200
253-20-10.0-10.5	10.0 - 10.5'	1225
253-22-10.0-10.5	10.0 - 10.5'	1240 HOLD
253-23-0.0-0.5	0.0 - 0.5'	1255 HOLD
253-23-4.0-4.5	4.0 - 4.5'	1315
253-23-6.0-6.5	6.0 - 6.5'	1330 HOLD
253-23-14.0-14.5	14.0 - 14.5'	1340 HOLD
253-24-0.0-0.5	0.0 - 0.5'	1400 HOLD
253-24-4.0-4.5	4.0 - 4.5'	1410
253-24-6.0-6.5	6.0 - 6.5'	1420 HOLD
253-24-14.0-14.5	14.0 - 14.5'	1430 HOLD
253-25-0.0-0.5	0.0 - 0.5'	1445 HOLD
253-25-4.0-4.5	4.0 - 4.5'	1450
253-25-6.0-6.5	6.0 - 6.5'	1500 HOLD
253-25-14.0-14.5	14.0 - 14.5'	1510 HOLD

* REFER TO BORING LOGS FOR LITHOLOGY

Location FESDate 10/12Project / Client PESGIS -

800 Arrive onsite; William Rankin & Albert Barum

ID	DTP	DTW	GW TIME	NAPL Time
TG05-MW-1	22.22	24.11	12:00	940
S-240	23.10	25.65	N/A	1020
S-233	20.83	20.88	1400	N/A
S-235	22.41	23.33	N/A	1010

* TG05-MW-1 Sampled using Evergreen's LNAPL sampling procedures. SOP.

* S-233 Sampled using Low-flow tech. Readings Taken every 5 min





LOW FLOW SAMPLING
DATA SHEET

SHEET 1 of 1

CONSULTING FIRM: Ransom Consulting
FIELD PERSONNEL: Albion Bacon

SITE: RES 8 M1
DATE: 10/16/12
WEATHER: 60.1 - Sunny

MONITOR WELL #: 1205-MW-1 WELL DEPTH: 30
WELL PERMIT #: _____ WELL DIAMETER: 2 inches

PIEDFID READINGS (ppm): _____ BACKGROUND: _____
BENEATH OUTER CAP: _____ PUMP INTAKE DEPTH: _____ ft below TOC
BENEATH INNER CAP: _____ DEPTH TO WATER BEFORE PUMP INSTALLATION: _____ ft below TOC

SCREENED/OPEN INTERVAL: _____

TIME	PURGING	SAMPLING	pH		SPECIFIC CONDUCTIVITY		REDOX POTENTIAL		DISSOLVED OXYGEN		TURBIDITY		TEMPERATURE		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1100	X		6.87	NA	0.560	NA	-112	NA	2.28	NA	—	NA	21.55	NA	200	
1110	X		6.54	5	0.564	0.7	-87	25.5	0.77	174	—	NA	21.62	8.2	200	
1120	X		6.49	0.7	0.577	2.3	-94	5.3	0.16	381	741	NA	21.54	6.2	200	
1130	X		6.47	0.3	0.587	1.7	-103	6.7	0.00	0	742	0.1	20.53	4.9	200	
1140	X		6.43	0.6	0.572	1.6	-107	3.7	0.00	0	575	29	20.40	0.5	200	
1150	X		6.42	0.1	0.571	0.2	-110	2.7	0.00	0	420	36	20.58	0.8	200	
1155	X		6.41	0.2	0.566	0.89	-110	0	0.00	0	554	18	20.61	0.1	200	
1200			6.41	0	0.566	0	-110	0	0.00	0	353	0.2	20.66	0.04	200	
1205			6.40	0.2	0.565	0.18	-110	0	0.00	0	352	0.2	20.61	0.04	200	

COMMENTS:

*INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature;
± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity



LOW FLOW SAMPLING
DATA SHEET

SHEET 1 OF 1

SITE: PF3
 DATE: 10/14/22
 WEATHER: 70s - sunny
 MONITOR WELL #: 5-233 WELL DEPTH: 30
 WELL PERMIT #: _____ WELL DIAMETER: 2 inches

CONSULTING FIRM: Ransom
 FIELD PERSONNEL: Albert Bacon

SCREENED/OPEN INTERVAL: _____

PID/PID READINGS (ppm): _____ BACKGROUND: _____
 BENEATH OUTER CAP: _____ PUMP INTAKE DEPTH: 25 ft below TOC
 BENEATH INNER CAP: _____ DEPTH TO WATER BEFORE PUMP INSTALLATION: 20.9 ft below TOC

TIME	PURGING	SAMPLING	pH		SPECIFIC CONDUCTIVITY		REDOX POTENTIAL		DISSOLVED OXYGEN		TURBIDITY		TEMPERATURE		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING (pH units)	CHANGE*	READING (mS/cm)	CHANGE*	READING (mv)	CHANGE*	READING (mg/l)	CHANGE*	READING (NTU)	CHANGE*	READING (degrees C)	CHANGE*		
1300	X		6.50	NA	0.470	NA	-105	NA	0.592	NA	103	NA	22.16	NA	200	
1305	X		6.48	0.3	0.490	0	-111	5	1.57	150	60.1	71	22.95	3.6	200	
1310	X		6.45	0.4	0.482	1.6	-113	1.7	1.13	38	53.3	12.7	25.15	8.6	200	
1315	X		6.40	0.7	0.457	1.0	-113	0	0.68	66	55.2	3.4	22.33	12.6	200	
1320	X		6.35	0.7	0.487	0	-112	0.8	0.62	9.6	44.9	-22	21.81	2.3	200	
1325	X		6.34	0.2	0.488	0	-111	0.9	0.60	3.3	46.0	2.4	21.80	0.04	200	
1330	X		6.35	0.2	0.482	0	-113	0.8	0.61	1.6	45.1	1.9	21.81	0.04	200	

COMMENTS:

[Handwritten signatures and initials]

*INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity

GROUNDWATER SAMPLING, TG-05

Low Flow Sampling DATA SHEET

MW-G05-01:

<u>Time</u>	<u>pH</u>	<u>CONDUCTIVITY</u>	<u>OR P</u>	<u>D.O.</u>	<u>TURBIDITY</u>	<u>TEMP</u>	<u>PUMP RATE</u>
0920	6.23	0.825	-88	0.81	535	14.10	~150 ml/min
0925	6.51	0.825	-89	0.81	531	14.12	}
0930	6.42	0.825	-90	0.81	521	14.11	
0935	6.44	0.824	-89	0.81	495	14.11	
0940	6.25	0.824	-95	0.79	232.0	14.31	
0950	6.46	0.824	-105	0.79	122.0	14.46	
0955	6.46	0.819	-90	0.72	70.1	14.16	
1000	6.46	0.817	-107	0.69	72.9	14.46	
1005	6.45	0.814	-109	0.61	70.1	14.53	
1010	6.45	0.814	-109	0.60	71.9	14.52	
1015	6.45	0.814	-110	0.62	70.2	14.55	

* READING STABILIZED, COLLECT SAMPLE @ 1045

Byfield, Massachusetts
 Providence, Rhode Island
 Portsmouth, New Hampshire
 Portland, Maine
 Hamilton, New Jersey

978-465-1822
 401-433-2160
 603-436-1490
 207-772-2891
 609-584-0090

PROJECT NO. 200.00135 SITE Poseux
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE 11/16
 CHECKED BY _____ DATE _____
 SCALE _____

Groundwater Sampling; TG-05

S-233-221116

Time	pH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMP	PUMP RATE
1150	6.30	0.301	42	2.26	203	15.01	~150 ml/min
1155	6.30	0.322	39	2.25	201	15.20	↓
1200	6.2	0.307	39	2.21	117	15.32	
1205	6.17	0.337	15	2.01	107	15.61	
1210	6.20	0.338	3	1.75	933	15.27	
1215	6.20	0.339	-2	1.79	921	15.70	
1220	6.20	0.339	-2	1.78	921	15.20	

x Collect Sample @ 1250

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-01		43.2	0.0-5.0' Brown/black SILT with SAND	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-01R	
Client: Hilco				Page 1 of 1		
Project Name: PES Refinery				Date Start: 07/25/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 07/25/2022		
Drilling Contractor: TPI				Permit No.:		
Driller:				Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"				Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short				Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 15.0'
Logged By: Tyler Short				Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
0.5	0.0-0.5'		0.0	0-1.5 Brown sandy FILL with SILT		
1			0.0			
1.5			0.0	1.5-13.5 Brown/gray SILT with fine SAND		
2			0.0			
2.5			0.0			
3	0.0					
3.5	4.0-4.5'		0.0			
4			0.0			
4.5			0.0			
5			0.0			
5.5	6.0-6.5'		2.1			
6			1.5			
6.5			2.7			
7			0.7			
7.5			9.8			
8			10.3			
8.5			13.7			
9			9.2			
9.5			5.2			
10			3.2			
10.5	14.0-14.5'		1.7			
11			1.3			
11.5			1.4			
12			0.2			
12.5			0.1			
13			0.1			
13.5			0.3			
14	0.2					
14.5	14.0-14.5'		0.4	13.5-15.0 Gray/Red fine SAND with some CLAY		
15			0.3			
16				END OF BORING (15.0 ft.)		
17						
18						
19						
20						
21						
22						
23						
24						
25						

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-02	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-02		30.5	0.0-5.0' Brown/black SILT with SAND	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-02R	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/26/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/26/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Datum: N/A	
				Total Depth: 15.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	0.0-0.5'		17.2	0-3.5 Silty FILL with GRAVEL	
2			15.0		
3			16.2		
4			10.2		
5	4.0-4.5'		9.8	3.5-13.5 Brown SILT	
6			11.1		
7	6.0-6.5'		10.1		
8			15.8		
9			45.6		
10			65.1		
11			102.2		
12	14.0-14.5'		117.8	13.5-15.0 Reddish brown fine SAND with SILT	
13			450.1		
14			380.5		
15			401.2		
16			375.5		
17			280.1	END OF BORING (15.0 ft.)	
18			154.5		
19			178.1		
20			183.0		
21			150.7		
22			202.7		
23			189.3		
24			170.4		
25			58.6		
26			20.1		
27			14.2		
28			2.5		
29			2.2		
30			1.7		
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-03			0.0-5.0' Black/gray FILL	
2			130.2		
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-04		11.7	0.0-5.0' Brown/black SAND with SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-05		26.8	0.0-5.0' Brown/gray SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-06	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-06		13.2	0.0-5.0' Brown fine SAND	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-07		30.9	0.0-5.0' Black/brown SAND with SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-08		0	0.0-5.0' Brown SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.5-4.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-09		25.1	0.0-5.0' Black/brown FILL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-10		0.0	0.0-5.0' Brown SILT with fine SAND	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-11		32.7	0.0-5.0' Sandy FILL with GRAVEL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-12		26.2	0.0-5.0' Sandy FILL with GRAVEL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Drilling Method: Geoprobe		Date Finish: 12/08/2021	
Driller:		Sampling Method: Acetate Liner		Permit No.:	
Hole Diameter: 2"		Sample Interval: 1.0-1.5'		Ground Elevation: N/A	
Logged By: Tyler Short				Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-13		47.0	0.0-5.0' Sandy FILL with GRAVEL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 0.5-1.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-14		22.0	0.0-5.0' Sandy FILL with GRAVEL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-15		0.0	0.0-5.0' Gray/brown SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-16	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 0.0-0.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-16		15.2	0.0-5.0' Sandy FILL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-17	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2021	
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2021	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.0-2.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-17		30.7	0.0-5.0' Sandy FILL	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-18		
Client: Hilco				Page 1 of 1			
Project Name: PES Refinery				Date Start: 07/25/2022			
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 07/25/2022			
Drilling Contractor: TPI				Permit No.:			
Driller:				Drilling Method: Geoprobe		Ground Elevation: N/A	
Hole Diameter: 2"				Sampling Method: Acetate Liner		Datum: N/A	
Logged By: Tyler Short				Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 14.5'	
Hammer wt./fall: N/A							
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks		
1	0.0-0.5'		0.0	0-1.5 Brown silty FILL with GRAVEL			
2			0.0				
3			0.0				
4			0.0				
5			0.0				
	4.0-4.5'		59.2	1.5-5.0 Brown SILT			
			101.8				
			99.7				
			802.3				
			750.3				
6	6.0-6.5'		710.1	5.0-13.0 Brown/gray SILT with fine SAND			
			805.6				
			120.2				
			658.1				
			25.8				
			10.3				
			17.9				
			9.9				
			7.8				
			1.2				
11	14.0-14.5'		0.7	13.0-14.5 Reddish brown coarse SAND with CLAY			
			0.7				
			0.5				
			0.9				
			0.9				
			1.0				
			1.0				
			1.0				
			1.0				
			1.0				
15	END OF BORING (14.5 ft.)						
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-19	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 8/9/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 8/9/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 7.5-8.0'		Datum: N/A	
				Total Depth: 8.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1			12.2	0.0-4.0' Brown silty FILL with GRAVEL	
			17.9		
2			11.4		
			8.2		
3			9.3	4.0-8.0' Brown SILT	
			186.4		
4			193.4		
			205.2		
5			225.8		
			205.1		
6			349.1		
			429.2		
7			301.4	END OF BORING (8 ft.)	
			156.9		
8	PB836-15		155.8		
			164.1		
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-19R	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/25/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/25/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Ground Elevation: N/A	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Datum: N/A	
		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 14.5'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	0.0-0.5'	5.00	0.0	0-1.5 Brown silty FILL	
2			0.0		
3			12.3	1.5-5.0 Brown SILT	
4			0.7		
5			10.1		
6	4.0-4.5'		13.3	5.0-6.5 Brown SILT with fine SAND	
7			5.6		
8			4.2		
9			2.2		
10			2.0		
11			1.0		
12	6.0-6.5'	4.3	9.2	6.5-13.5 Brown/gray SILT with fine SAND	
13			25.9		
14			163.8		
15			205.2		
16			283.3		
17			403.2		
18	195.5	13.5-14.5 Brownish red fine SAND with some CLAY			
19	78.6				
20	30.4				
21	32.3				
22	28.2				
23	19.6				
24	16.2	END OF BORING (14.5 ft.)			
25	2.1				
26	0.8				
27	0.0				
28	0.0				
29	0.0				
30	0.0				
31	0.0				
32	0.0				
33	0.0				
34	0.0				
35	0.0				
36	0.0				
37	0.0				
38	0.0				
39	0.0				
40	0.0				
41	0.0				
42	0.0				
43	0.0				
44	0.0				
45	0.0				
46	0.0				
47	0.0				
48	0.0				
49	0.0				
50	0.0				
51	0.0				
52	0.0				
53	0.0				
54	0.0				
55	0.0				
56	0.0				
57	0.0				
58	0.0				
59	0.0				
60	0.0				
61	0.0				
62	0.0				
63	0.0				
64	0.0				
65	0.0				
66	0.0				
67	0.0				
68	0.0				
69	0.0				
70	0.0				
71	0.0				
72	0.0				
73	0.0				
74	0.0				
75	0.0				
76	0.0				
77	0.0				
78	0.0				
79	0.0				
80	0.0				
81	0.0				
82	0.0				
83	0.0				
84	0.0				
85	0.0				
86	0.0				
87	0.0				
88	0.0				
89	0.0				
90	0.0				
91	0.0				
92	0.0				
93	0.0				
94	0.0				
95	0.0				
96	0.0				
97	0.0				
98	0.0				
99	0.0				
100	0.0				

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-20	
Client: Hilco				Page 1 of 1		
Project Name: PES Refinery				Date Start: 07/25/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 07/25/2022		
Drilling Contractor: TPI				Permit No.:		
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A		
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A		
Logged By: Tyler Short		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 15.0'		
				Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	0.0-0.5'		0.0	0-3.0 Brown Sandy FILL with SILT		
2			0.0			
3			0.0			
4			0.7			
5			1.2			
6	4.0-4.5'		1.5	3.0-13.5 Light Brown SILT		
7			2.2			
8			3.9			
9			15.6			
10			14.7			
11	6.0-6.5'		16.2			
12			17.9			
13			12.1			
14			20.3			
15			13.2			
16	14.0-14.5'		18.1			
17			30.9			
18			37.3			
19			40.1			
20			29.6			
21			15.9	13.5-15.0 Reddish gray SILT with fine SAND		
22			9.7			
23			8.1			
24			7.5			
25			3.3			
26			0.7			
27			0.1			
28			0.2			
29				END OF BORING (15.0 ft.)		
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
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42						
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-20		
Client: Hilco		Project Name: PES Refinery		Page 1 of 1		
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 8/9/2022		
Drilling Contractor: TPI		Driller:		Date Finish: 8/9/2022		
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:		
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A		
		Sample Interval: 10.0-10.5'		Datum: N/A		
				Total Depth: 11.0'		
				Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	PB836-20		10.2	0.0-3.0' Light brown silty FILL with GRAVEL		
			9.3			
			17.8			
2				19.2		3.0-5.0' Brown SILT
				25.6		
				30.8		
3				47.7		5.0-11.0' Brown SILT
				65.8		
				69.2		
4				102.3		END OF BORING (11.0 ft.)
				284.2		
5		492.6				
		501.8				
6		600.7				
		484.1				
7		292.3				
		301.1				
8		182.9				
		185.6				
9		175.1				
		198.9				
10		205.3				
11						
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Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-21	
Client: Hilco				Page 1 of 1		
Project Name: PES Refinery				Date Start: 07/25/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 07/25/2022		
Drilling Contractor: TPI				Permit No.:		
Driller:				Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"				Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short				Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 15.0'
				Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	0.0-0.5'		0.0	0-2.0 Silty FILL with GRAVEL		
2			0.0			
3			0.0			
4			0.0			
5			0.0			
6	4.0-4.5'		0.0	2.0-7.5 Brown SILT		
7			0.0			
8			0.0			
9			0.0			
10			0.0			
11	6.0-6.5'		0.0	7.5-13.0 Brown SILT with fine SAND		
12			0.0			
13			0.0			
14			0.0			
15			0.0			
16	14.0-14.5'		0.0	13.0-15.0 Brown/gray fine SAND with SAND		
17			0.0			
18			0.0			
19			0.0			
20			0.0			
21				END OF BORING (15.0 ft.)		
22						
23						
24						
25						

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-22	
Client: Hilco				Page 1 of 1		
Project Name: PES Refinery				Date Start: 07/26/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 07/26/2022		
Drilling Contractor: TPI				Permit No.:		
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A		
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A		
Logged By: Tyler Short		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 15.0'		
Logged By: Tyler Short				Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	0.0-0.5'		0.0	0-3.5 Brown silty FILL		
2			0.0			
3			0.2			
4			0.0			
5	4.0-4.5'		0.0	3.5-13.5 Brown SILT		
4			0.0			
6	6.0-6.5'		0.2			
7			10.2			
8			15.2			
9			16.9			
10			25.8			
11	14.0-14.5'		50.6			
12			69.2			
13			78.3			
14			72.3			
15			79.4			
16			82.1			
17	14.0-14.5'		109.3	13.5-15.0 Reddish gray fine SAND		
18			115.8			
19			107.9			
20			86.3			
21			54.5			
22	17.8					
23			12.3	END OF BORING (15.0 ft.)		
24			15.3			
25			19.2			
26			9.2			
27			8.1			
28						
29						
30						
31						
32						
33						
34						
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36						
37						
38						
39						
40						
41						
42						
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-22	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 8/9/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 8/9/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 10.0-10.5'		Datum: N/A	
				Total Depth: 11.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-22		5.2	0.0-5.0' Brown sandy FILL with GRAVEL	
			6.4		
			7.1		
2			6.2		
			11.8		
3			13.7		
			17.9		
4			25.8		
			102.4		
5			188.6		
			188.7		
6			195.6	5.0-10.0' Brown/gray SILT with GRAVEL and fine SAND	
	206.9				
7	199.5				
	208.8				
8	292.4				
	301.5				
9	303.7				
	305.8				
10	351.8				
	340.6				
11	349.1				
12				END OF BORING (11.0 ft.)	
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-23	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 8/9/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 8/9/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Datum: N/A	
				Total Depth: 15.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-23		15.6	0.0-3.0' Brown silty FILL	
			17.9		
			13.7		
2	PB253-23		15.8	3.0-6.0' Brown SILT	
			25.7		
			152.7		
3	PB253-23		192.4	6.0-10.0' Brown SILT with GRAVEL	
			207.3		
			195.6		
4	PB253-23		182.3	10.0-14.0' Brown/gray SILT	
			195.6		
			273.4		
5	PB253-23		285.1	14.0-15.0' Red/gray CLAY with SILT	
			334.4		
			315.7		
6	PB253-23		308.9	END OF BORING (15 ft.)	
			372.5		
			401.8		
7	PB253-23		445.6		
			592.3		
			985.6		
8	PB253-23		965.7		
			865.2		
			725.7		
9	PB253-23		825.7		
			949.2		
			801.7		
10	PB253-23		767		
			850.4		
			831.2		
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-253-24	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 8/9/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 8/9/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Datum: N/A	
				Total Depth: 15.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB253-24		1.7	0.0-4.0' Brown course sandy FILL with GRAVEL	
			2.0		
2			1.7		
			1.9		
3	PB253-24		1.1	4.0-10.0' Brown SILT	
			1.8		
4			2.5		
			2.5		
5	PB253-24		2.6	10.0-14.0' Brown/gray SILT with some fine SAND	
			3.1		
6			2.5		
			17.2		
7	PB253-24		18.3	END OF BORING (15 ft.)	
			18.1		
8			20.4		
			35.3		
9	PB253-24		30.2		
			35.7		
10			31.0		
			35.7		
11	PB253-24		45.7		
			50.2		
12			49.7		
			44.3		
13	PB253-24		43.1		
			40.3		
14			39.9		
			38.0		
15	PB253-24		42.7		
			41.0		
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-253-25	
Client: Hilco				Page 1 of 1		
Project Name: PES Refinery				Date Start: 8/9/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 8/9/2022		
Drilling Contractor: TPI				Permit No.:		
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A		
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A		
Logged By: Tyler Short		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Total Depth: 15.0'		
Logged By: Tyler Short		Sample Interval: 0.0-0.5', 4.0-4.5', 6.0-6.5', 14.0-14.5'		Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	PB253-25		2.7	0.0-3.0' Brown sandy FILL with GRAVEL		
			3.2			
			6.6			
2			9.1			
			2.9			
			3.7			
3			20.5	3.0-8.0' Brown SILT		
			27.9			
			35.9			
4	PB253-25		39.2			
			48.7			
			109.2			
5			256.9			
			271.8			
			340.5			
6	PB253-25		318.9			
			489.1			
			672.3			
7			601.8	8.0-13.0' Gray SILT		
			1009			
			1034			
8			732.7			
			565.8			
			533.6			
9			525.2			
			555.1			
			590.4			
10			495.8	13.0-15.0' Gray SILT with fine SAND		
			480.2			
			495.6			
11	PB253-25					
12						
13						
14						
15						
16				END OF BORING (15 ft.)		
17						
18						
19						
20						
21						
22						
23						
24						
25						

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-01
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-01		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
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21					
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Ransom Consulting, Inc.	Soil Boring Log		Boring No.: PB-821-02
			Page 1 of 1
Client: Hilco		Date Start: 07/05/2022	
Project Name: PES Refinery		Date Finish: 07/05/2022	
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A	
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-02		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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22					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-821-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-03		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-821-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-04		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-05
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-05		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-821-06
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-06		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
			0.0		
3			0.0		
			0.0		
4			0.0	END OF BORING (5 ft.)	
			0.0		
5			0.0		
			0.0		
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-821-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-07		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-08
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-08		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log		Boring No.: PB-821-09
			Page 1 of 1
Client: Hilco		Date Start: 07/05/2022	
Project Name: PES Refinery		Date Finish: 07/05/2022	
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A	
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-09		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-10
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-10		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-11
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-11		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-821-12
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB821-12		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-01
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-01		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-02
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-02		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
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22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-03
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-03		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-04
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-04		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-05
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-05		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-06
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-06		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-07
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-07		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-08
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-08		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-09
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-09		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-822-10
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-10		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Ground Elevation: N/A	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Datum: N/A	
		Sample Interval: 4.0-4.5'		Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-11		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
			0.0		
3			0.0		
			92.1		
4			99.1		
			81.3		
5			72.3		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log			Boring No.: PB-822-12	
Client: Hilco		Project Name: PES Refinery			Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA			Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:			Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe			Ground Elevation: N/A	
Logged By: Tyler Short		Sampling Method: Acetate Liner			Datum: N/A	
		Sample Interval: 3.0-3.5'			Total Depth: 5.0'	
					Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks	
1	PB822-12		0.0	0.0-5.0' Brown sandy SILT		
			0.0			
2			0.0			
			0.0			
3			0.0			
4			0.0			
5			0.0			
6				END OF BORING (5 ft.)		
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Ransom Consulting, Inc.	Soil Boring Log		Boring No.: PB-822-13
			Page 1 of 1
Client: Hilco		Date Start: 07/05/2022	
Project Name: PES Refinery		Date Finish: 07/05/2022	
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A	
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-13		0.0	0.0-5.0' Brown sandy SILT	
			0.0		
2			0.0		
3			0.0		
4			0.0		
5	12.2				
	28.3				
	10.1				
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-13		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-15		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-16	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-16		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-17	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-17		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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21					
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23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-18	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-18		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-19	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-19		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-822-20	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB822-20		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-01		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			33.6		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-02	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-02		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-03		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.0-2.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-04		0.0	0.0-5.0' Gray/brown SILT	
2			9.2		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-05		0.0	0.0-5.0' Gray/brown SILT	
2			0.0		
3			0.0		
4			0.0		
5			22.9		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-06	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-06		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-07		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-08		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-09		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-10		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-11		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-12		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-13		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-14		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-823-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB823-15		0.0	0.0-4.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			1.8		
6				4.0-5.0' Brown SILT with CLAY	
END OF BORING (5 ft.)					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-01
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-01		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-02
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-02		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-03
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-03		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-04
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-04		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-05
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-05		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-06
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-06		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-07
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-07		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-08
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-08		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-09
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-09		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-10
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-10		19.3	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-11
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-11		123.1	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-12
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-12		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-13
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.0-4.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-13		192.2	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Ground Elevation: N/A	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Datum: N/A	
		Sample Interval: 4.0-4.5'		Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-11			0.0-5.0' Brown sandy SILT	
2					
3					
4					
5			191.9		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-15
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-15		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-16
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-16		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-17
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-17		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-18
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-18		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-19
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-19		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-20
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-20		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-21
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-21		12.1	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-22
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-22		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-23
		Page 1 of 1
Client: Hilco		Date Start: 07/07/2022
Project Name: PES Refinery		Date Finish: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-23		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-24
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-24		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-824-25
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/07/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-25		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-824-26
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB824-26		0.0	0.0-5.0' Brown sandy SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-01		10.2	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.7		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-02	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-02		0.0	0.0-3.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0	3.0-5.0' Brown/gray SILT	
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-03		0.0	0.0-5.0' Gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-04		0.0	0.0-5.0' Gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-05		1.2	0.0-4.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			12.5		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-06	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-06		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-07		0.0	0.0-5.0' Brown sandy SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-08		0.0	0.0-5.0' Gray SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-09		0.9	0.0-3.0' Black sandy FILL	
2			15.6		
3			0.0		
4			0.0	3.0-5.0' Gray SILT	
5			0.0		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-10		0.0	0.0-5.0' Brown/gray SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.5-4.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-11			0.0-5.0' Gray SILT	
2					
3					
4					
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-12		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-13		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			1.6		
4			5.4		
5					
6				0.0-5.0' Gray SILT	
7				END OF BORING (5 ft.)	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-14		0.0	0.0-5.0' Brown/gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.5-3.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-15		52.8	0.0-5.0' Brown/gray SILT	
2			132.7		
3			78.3		
4			17.3		
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-16	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-16		0.0	0.0-5.0' Brown/gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-17	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-17		6.2	0.0-5.0' Gray SILT	
2			17.2		
3			438.2		
4			706.1		
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-18	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.5-2.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-18		17.3	0.0-4.0' Brown FILL and GRAVEL	
2			182.2		
3			5.6		
4			7.1		
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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20					
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23					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-825-19	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/07/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/07/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB825-19		0.0	0.0-5.0' Gray SILT	
2			38.1		
3			223.8		
4			898.1		
5					
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-01		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
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23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-02
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-02		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.	Soil Boring Log	Boring No.: PB-833-03
Client: Hilco		Page 1 of 1
Project Name: PES Refinery		Date Start: 07/05/2022
Project No.: 200.00135	Location: Philadelphia, PA	Date Finish: 07/05/2022
Drilling Contractor: TPI		Permit No.:
Driller:	Drilling Method: Geoprobe	Ground Elevation: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Datum: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-03		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-04		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.3		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.0-2.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-05		12.2	0.0-5.0' Brown sandy FILL	
2			14.0		
3			7.2		
4			9.8		
5			10.4		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-06
Client: Hilco		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-06		1.9	0.0-5.0' Brown sandy FILL	
2			2.5		
3			11.7		
4			13		
5			17.8		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-07		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-08		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-09		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-10		29.2	0.0-5.0' Brown silty FILL	
2			45.7		
3			39.2		
4			81.8		
5			90.7		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-11		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-12		0.0	0.0-5.0' Brown silty FILL	
2			1.0		
3			1.2		
4					
5			6.3 0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-13		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			7.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-14		0.0	0.0-5.0' Brown silty FILL	
2			0.2		
3					
4			1.2		
5			0.0		
6			0.0	4.5-5.0' Brown/black silty FILL	
7				END OF BORING (5 ft.)	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-15		0.0	0.0-3.0' Black sandy FILL	
2			0.0		
3			0.0		
4			1.4	3.0-5.0' Brown silty FILL	
5			0.0		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-833-16	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB833-16		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4					
5			1.9 0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-01		0.0	0.0-5.0' Brown silty SAND	
2			2.3		
3			4.9		
4			2.1		
5			8.7		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-02	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-02		0.0	0.0-5.0' Gray/brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-03		0.0	0.0-4.5' Brown silty FILL	
2			0.7		
3			1.2		
4			0.9		
5			3.2		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.0-2.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-04		0.0	0.0-5.0' Brown SILT with SAND	
2			25.6		
3			10.2		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-05		0.0	0.0-5.0' Brown/gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-06	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-06		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-07		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-08		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.5-3.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-09		0.0	0.0-5.0' Brown/gray sandy FILL	
2			0.9		
3			22.3		
4			7.2		
5			2.5		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-10		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-11		0.0	0.0-5.0' Brown silty FILL	
2			10.9		
3			5.6		
4			12.3		
5			50.5		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-12		0.8	0.0-4.0' Brown SAND with GRAVEL	
2			14.5		
3			12.3		
4			13.2		
5			109.2		
6				4.0-5.0' Gray SILT	
7				END OF BORING (5 ft.)	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-13		0.0	0.0-5.0' Brown/gray silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-14		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-15		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-16	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 1.0-1.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-16		2.9	0.0-5.0' Brown silty FILL	
2			5.6		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-17	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-17		0.0	0.0-5.0' Brown/gray silty FILL	
2			2.2		
3			0.1		
4			3.3		
5			8.9		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-835-18	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB835-18		0.0	0.0-5.0' Brown SANDY FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-01	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-01		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.7		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-02	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-02		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-03	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-03		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-04	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-04		0.0	0.0-5.0' Brown silty FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-05	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-05		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-06	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-06		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-07	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-07		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-08	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/05/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/05/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-08		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-09	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-09		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-10	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-10		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-11	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-11		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-12	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-12		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-13	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-13		0.0	0.0-5.0' Brown sandy FILL with SILT	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-14	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-14		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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Ransom Consulting, Inc.		Soil Boring Log		Boring No.: PB-836-15	
Client: Hilco		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 07/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 07/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB836-15		0.0	0.0-5.0' Brown sandy FILL	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
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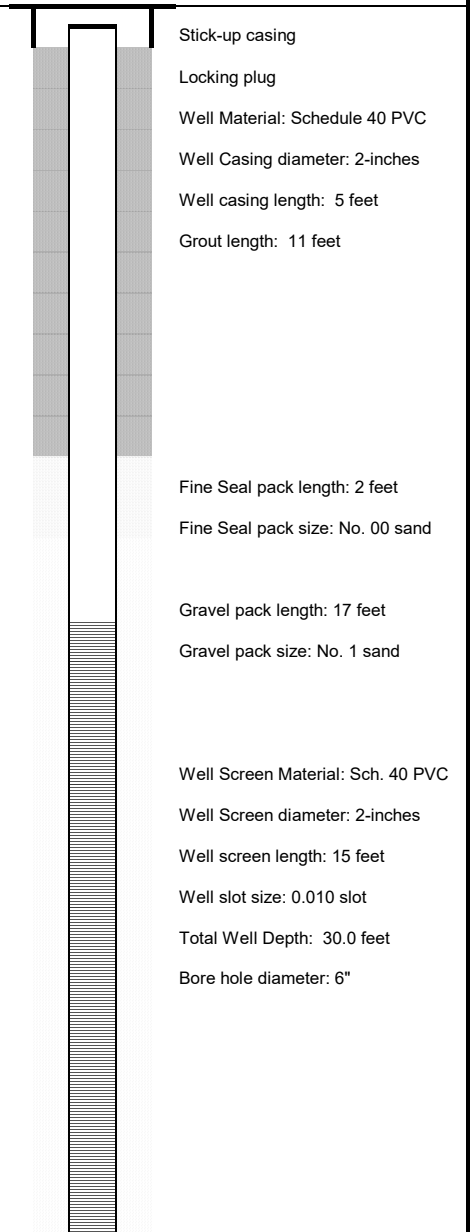
MONITORING WELL LOG

Project: PESRM - Tank Group 05	Well Permit Number:	Boring/Well No.:	TG05-MW-01
Project No.: 200.00135	Drilling Co.: TPI Environmental	Lock No.:	Master Lock 0410
Site Location: 3144 Passyunk Ave, Philadelphia, PA	Driller: Justin Verba	Start Date:	9/26/2022
Scientist: Tyler Short	Drilling Method: Hollow Stem Auger	Start Date:	9/26/2022
Ground Elev.: 19.80 (NAVD 88)	Drilling Equip: 7822 DT	Total Boring Depth:	30 feet
Top of Casing Elev.: 22.91 (NAVD 88)	Static Water (below TOC): 24.97 feet	Product Thickness:	N/A

Remarks:
Approximately 1.96 feet of LNAPL was measured in well ten days after installation using an interface probe.

AS-BUILT WELL SCHEMATIC

GEOLOGIC LOG	Depth (ft.)	Blow/6 inches	Recovery (ft.)	PID (ppm)	Sample
0-6": Top Soil with SILT, gravel	0.0-1.0			22.3	
1'-5': Brown silty FILL, trace of sand, gravel, brick, moist	1.0-2.0			30.7	
	2.0-3.0			25.9	
	3.0-4.0			20.9	
	4.0-5.0			37.8	
5'-10.5': Brown/grey SILT, trace of coarse sand, wet	5.0-6.0			48.9	
	6.0-7.0			55.1	
	7.0-8.0			65.7	
	8.0-9.0			77.2	
	9.0-10.0			101.2	
10.5'-13': Grey/brown SILT, trace of fine sand, wet	10.0-11.0			133.9	
	11.0-12.0			145.7	
	12.0-13.0			157.1	
13'-22': Grey fine SAND, some silt, wet	13.0-14.0			142.7	
	14.0-15.0			137.0	
	15.0-16.0			165.8	
	16.0-17.0			175.3	
	17.0-18.0			122.3	
	18.0-19.0			145.6	
	19.0-20.0			172.1	
	20.0-21.0			185.7	
	21.0-22.0			190.2	
22'-30': Grey/brown SILT, some clay, wet	22.0-23.0			151.9	
	23.0-24.0			129.4	
	24.0-25.0			73.2	
	25.0-26.0			89.4	
	26.0-27.0			101.8	
	27.0-28.0			107.9	
	28.0-29.0			110.2	
	29.0-30.0			115.2	
	End of Borehole at 30'				



Appendix G

Release Notification





January 5, 2022

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 05
PADEP Facility ID #51-33620 – Point Breeze Refinery
Initial Notification – Incident No. 57203
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on January 3, 2022, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 05, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at tank PB-253 (042A). This is the initial notification for tanks in Tank Group 05. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 05 will be combined with the incident number assigned by PADEP.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

A handwritten signature in cursive script that reads "Kevin L. Long".

Kevin Long
Principal Consultant

A handwritten signature in cursive script that reads "Nicholas Scala".

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 05)

January 5, 2022

Mr. Ron Estel

PADEP Notification of Release Form - Tank Group 05

cc: Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP – lstrobridge@pa.gov)
Ralph DiPietro (Philadelphia L & I – ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE (*Owners and Operators*)

FACILITY I.D. NUMBER 51 - 33620

Initial
 Follow-Up

NOTIFICATION OF CONTAMINATION (*Certified Installers and Inspectors*)

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:

PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section

(and the appropriate address below, depending on where the FACILITY is located)

<p>Northwest Region 230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 Counties: Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren</p>	<p>North-central Region 208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 Counties: Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union</p>	<p>Northeast Region 2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming</p>
<p>Southwest Region 400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 Counties: Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland</p>	<p>South-central Region 909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York</p>	<p>Southeast Region 2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 Counties: Bucks, Chester, Delaware, Montgomery, Philadelphia</p>

I. FACILITY INFORMATION (Both O/O and I/I)	II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)
Facility Name <u>Philadelphia Refinery Point Breeze</u> Facility I.D. Number <u>51-33620</u> Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u> City <u>Philadelphia</u> State <u>PA</u> Zip Code <u>19141 - 5299</u> County <u>Philadelphia</u> Municipality <u>Philadelphia</u> Contact Person <u>Anne Garr</u> Telephone Number <u>(312) 796 - 6564</u>	Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u> Address <u>111 S. Wacker Dr, Suite 3000</u> City <u>Chicago</u> State <u>IL</u> Zip Code <u>60606 -</u> Telephone Number <u>(312) 796 - 6564</u> Operator Name <u>Anne Garr</u> Telephone Number <u>(312) 796 - 6564</u>

III. REGULATED SUBSTANCE INFORMATION		
A. Type of Product(s) Involved (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>	B. Quantity (Gallons) of Product(s) Released: <u>O/O Only</u>	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>
Leaded Gasoline <input type="checkbox"/> [S] [C]
Unleaded Gasoline <input type="checkbox"/> [S] [C]
Aviation Gasoline <input type="checkbox"/> [S] [C]
Kerosene <input type="checkbox"/> [S] [C]
Jet Fuel <input type="checkbox"/> [S] [C]
Diesel Fuel <input checked="" type="checkbox"/>	<u>U N K N O W N</u> [S] <input checked="" type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> [S] [C]
Used Motor Oil <input type="checkbox"/> [S] [C]
Fuel Oil No. 1 <input type="checkbox"/> [S] [C]
Fuel Oil No. 2 <input type="checkbox"/> [S] [C]
Fuel Oil No. 4 <input type="checkbox"/> [S] [C]
Fuel Oil No. 5 <input type="checkbox"/> [S] [C]
Fuel Oil No. 6 <input type="checkbox"/> [S] [C]
Other (Specify) _____ <input type="checkbox"/> [S] [C]
Unknown <input type="checkbox"/> [S] [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)		
Date Release was Confirmed: <u>01 / 03 / 2022</u> <small>m d y</small>		Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified: Date: <u>01 / 05 / 2022</u> Municipality <u>Philadelphia</u> <small>m d y</small>
Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>01 / 03 / 2022</u> Office <u>Southeast Region</u> <small>m d y</small>		Date: _____ Municipality _____ <small>m d y</small>
Source (Mark All That Apply <input checked="" type="checkbox"/>):	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>):	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>):
Tank (DEP Assigned Nos. <u>042A</u>) <input checked="" type="checkbox"/>	During Closure..... <input checked="" type="checkbox"/>	Soil <input checked="" type="checkbox"/>
Piping System (Aboveground Regulated) <input checked="" type="checkbox"/>	Lining Installation..... <input type="checkbox"/>	Sediment <input type="checkbox"/>
Piping System (Underground Regulated)..... <input type="checkbox"/>	Routine Leak Detection <input type="checkbox"/>	Surface Water <input type="checkbox"/>
Piping System (Non-Regulated)..... <input type="checkbox"/>	Third Party Inspection..... <input type="checkbox"/>	Ground Water <input type="checkbox"/>
Dispenser/Dispensing Equipment <input type="checkbox"/>	Tightness Testing Activities <input type="checkbox"/>	Bedrock <input type="checkbox"/>
Spill Prevention Equipment..... <input type="checkbox"/>	Visible Product or Odor Reports <input type="checkbox"/>	Water Supplies <input type="checkbox"/>
Submersible Turbine Pump Head/Fittings..... <input type="checkbox"/>	Water in Tank..... <input type="checkbox"/>	Vapors/Product in Buildings <input type="checkbox"/>
Containment/Sump Failure <input type="checkbox"/>	Construction <input type="checkbox"/>	Vapors/Product in Sewer/Utility Lines <input type="checkbox"/>
Other (Specify) _____ <input type="checkbox"/>	Upgrade/Repair <input type="checkbox"/>	Ecological Receptors..... <input type="checkbox"/>
Unknown <input type="checkbox"/>	Supply Well Sample Results..... <input type="checkbox"/>	
Cause (Mark All That Apply <input checked="" type="checkbox"/>):	Monitoring Well Sample Results <input type="checkbox"/>	
Faulty Installation..... <input type="checkbox"/>	Property Transfer..... <input type="checkbox"/>	
Corrosion..... <input type="checkbox"/>	Other (Specify) <u>Site Assessment Sampling</u> <input checked="" type="checkbox"/>	
Physical/Mechanical Failure..... <input type="checkbox"/>	Unknown <input type="checkbox"/>	
Spill During Delivery <input type="checkbox"/>		
Overfill at Delivery..... <input type="checkbox"/>		
Vehicle Gas Tank Overfill <input type="checkbox"/>		
Product Delivery Hose Rupture..... <input type="checkbox"/>		
Accident/Natural Disaster <input type="checkbox"/>		
Other (Specify) _____ <input type="checkbox"/>		
Unknown <input type="checkbox"/>		

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fire, Explosion and Safety Hazards Mitigated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contaminated Soil Excavated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free Product Recovered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water Supplies Identified and Sampled.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Temporary Water Supplies Provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other (Specify) <u>Site Characterization</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 01 / 03 / 2022
m d y

Indication of Suspected Release / Contamination (Mark All That Apply

- Unusual Level of Vapors
- Erratic Behavior of Product Dispensing Equipment
- Release Detection Results Indicate a Release
- Discovery of Holes in the Storage Tank
- Containment Sump Test Failure
- Spill Prevention Equipment Test Failure
- Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 01 / 03 / 2022
m d y

Extent of Confirmed Contamination (Mark All That Apply

- Product Stained or Product Saturated Soil or Backfill
- Poned Product
- Free Product or Sheen on Poned Water
- Free Product or Sheen on the Ground Water Surface
- Free Product or Sheen on Surface Water
- Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½" x 11" sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 05 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene and naphthalene. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.


This notification is the initial incident reported in Tank Group 05. Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 05 will be combined with the incident number, once assigned.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne R. Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.


Signature of Owner or Operator

01 / 04 / 2022
Date

CERTIFIED INSTALLER CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

Date

Inspector Certification Number

Company Certification Number

Appendix H

Site Assessment and Site Characterization Soil Results



Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-01	PB-253-01	PB-253-01	PB-253-01	PB-253-01	PB-253-01	PB-253-02	PB-253-02	PB-253-02
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-01R-0.0-0.5	PB-253-01-SS01	PB-253-01R-4.0-4.5	PB-253-01R-6.0-6.5	PB-253-01R-14.0-14.5	PB-253-02R-0.0-0.5	PB-253-02-SS01	PB-253-02R-4.5-5.0	PB-253-02R-4.5-5.0
Matrix	Contact with	Contact with	GW MSCs Used	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	0 - 0.5	4.5 - 5	4 - 4.5	6 - 6.5	14 - 14.5	0 - 0.5	4 - 4.5	4.5 - 5	4.5 - 5
Sample Date	TDS≤2500			7/25/2022	12/7/2021	7/25/2022	7/25/2022	7/25/2022	7/26/2022	12/7/2021	7/26/2022	7/26/2022
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.00038 J (0.00054)	<u>3.5 (0.065)</u>	<u>3.8 (0.059)</u>	<u>3.8 (0.055)</u>	0.052 (0.028)	ND (0.00054)	<u>0.53 (0.038)</u>	ND (0.00053)	
Cumene	10000	10000	2500	NA	1 (0.13)	NA	NA	NA	NA	2.3 (0.075)	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	9.4 (0.13)	NA	NA	NA	NA	6.4 (0.075)	NA	NA
Methyl tert-butyl ether	8500	9800	2	NA	0.00083 J (0.0023)	NA	NA	NA	NA	ND (0.15)	NA	NA
Toluene	10000	10000	100	NA	0.7 (0.13)	NA	NA	NA	NA	0.53 (0.075)	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	NA	14 (0.26)	NA	NA	NA	NA	34 (1.5)	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	NA	1.9 (0.26)	NA	NA	NA	NA	12 (0.15)	NA	NA
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	0.75 (0.52)	3.3 (0.2)	NA	NA	0.052 J (0.2)	<u>48 (3)</u>	NA	NA
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-02	PB-253-02	PB-253-03	PB-253-04	PB-253-05	PB-253-06	PB-253-07	PB-253-08
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-02R-6.0-6.5	PB-253-02R-6.0-6.5-1	PB-253-03-SS01	PB-253-04-SS01	PB-253-05-SS01	PB-253-06-SS01	PB-253-07-SS01	PB-253-08-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	6 - 6.5	6 - 6.5	1 - 1.5	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/26/2022	7/28/2022	12/7/2021	12/7/2021	12/7/2021	12/7/2021	12/7/2021	12/7/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.0002 J (0.00047)	NA	ND (0.00048)	ND (0.00043)	ND (0.00056)	ND (0.00057)	0.00047 J (0.00064)	ND (0.034)
Cumene	10000	10000	2500	NA	NA	ND (0.00097)	ND (0.00085)	0.043 (0.0011)	ND (0.0011)	0.0014 (0.0013)	0.38 (0.067)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	ND (0.00097)	ND (0.00085)	0.0084 (0.0011)	ND (0.0011)	0.002 (0.0013)	0.12 (0.067)
Methyl tert-butyl ether	8500	9800	2	NA	NA	ND (0.0019)	ND (0.0017)	ND (0.0023)	ND (0.0023)	ND (0.0026)	ND (0.13)
Toluene	10000	10000	100	NA	NA	ND (0.00097)	ND (0.00085)	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.067)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	0.00034 J (0.0019)	ND (0.0017)	0.19 (0.0023)	ND (0.0023)	0.0015 J (0.0026)	4.4 (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	ND (0.0019)	ND (0.0017)	0.015 (0.0023)	ND (0.0023)	0.0023 J (0.0026)	1.9 (0.13)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	ND (0.19)	ND (0.0039)	ND (0.0034)	0.019 (0.0045)	ND (0.0045)	0.038 (0.0051)	1.9 (0.27)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-09	PB-253-10	PB-253-11	PB-253-12	PB-253-13	PB-253-14	PB-253-15	PB-253-16
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-09-SS01	PB-253-10-SS01	PB-253-11-SS01	PB-253-12-SS01	PB-253-13-SS01	PB-253-14-SS01	PB-253-15-SS01	PB-253-16-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Subsurface Soil	Surface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3.5 - 4	3 - 3.5	1 - 1.5	1 - 1.5	1 - 1.5	0.5 - 1	3 - 3.5	0 - 0.5
Sample Date	TDS≤2500			12/7/2021	12/7/2021	12/8/2021	12/8/2021	12/8/2021	12/8/2021	12/8/2021	12/8/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00069)	ND (0.032)	ND (0.00045)	ND (0.00054)	ND (0.00072)	ND (0.00053)	ND (0.00052)	ND (0.00052)
Cumene	10000	10000	2500	0.015 (0.0014)	2.4 (0.065)	ND (0.00089)	ND (0.0011)	ND (0.0014)	ND (0.0011)	ND (0.001)	ND (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.0014 (0.0014)	0.033 J (0.065)	ND (0.00089)	ND (0.0011)	ND (0.0014)	ND (0.0011)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.0028)	ND (0.13)	ND (0.0018)	ND (0.0021)	ND (0.0029)	ND (0.0021)	ND (0.0021)	ND (0.0021)
Toluene	10000	10000	100	ND (0.0014)	ND (0.065)	ND (0.00089)	ND (0.0011)	ND (0.0014)	ND (0.0011)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	0.01 (0.0028)	0.18 (0.13)	ND (0.0018)	ND (0.0021)	ND (0.0029)	ND (0.0021)	ND (0.0021)	ND (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	0.0052 (0.0028)	0.033 J (0.13)	ND (0.0018)	ND (0.0021)	ND (0.0029)	ND (0.0021)	ND (0.0021)	ND (0.0021)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.014 (0.0055)	0.91 (0.26)	ND (0.0036)	ND (0.0043)	ND (0.0058)	ND (0.0042)	ND (0.0042)	ND (0.0042)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-17	PB-253-17	PB-253-18	PB-253-18	PB-253-18	PB-253-18	PB-253-19	PB-253-19
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-17-SS01	PB-253-17	PB-253-18-0.0-0.5	PB-253-18-4.0-4.5	PB-253-18-6.0-6.5	PB-253-18-14.0-14.5	PB-253-19-0.0-0.5	PB-253-19-4.0-4.5
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	2 - 2.5	2 - 2.5	0 - 0.5	4 - 4.5	6 - 6.5	14 - 14.5	0 - 0.5	4 - 4.5
Sample Date											
Comments											
				12/8/2021	12/8/2021	7/25/2022	7/25/2022	7/25/2022	7/25/2022	7/25/2022	7/25/2022
				Field Duplicate							
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00068)	ND (0.00057)	0.11 (0.032)	<u>1.1 (0.031)</u>	<u>0.6 (0.31)</u>	0.067 (0.027)	<u>2.8 (0.15)</u>	<u>8.1 (0.11)</u>
Cumene	10000	10000	2500	ND (0.0014)	ND (0.0011)	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0014)	ND (0.0011)	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.0027)	ND (0.0023)	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	ND (0.0014)	ND (0.0011)	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0027)	ND (0.0023)	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0027)	ND (0.0023)	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0055)	ND (0.0046)	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results

Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-19	PB-253-19	PB-253-19	PB-253-20	PB-253-20	PB-253-20	PB-253-20	PB-253-20
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-19-6.0-6.5	PB-253-19-7.5-8.0	PB-253-19-14.0-14.5	PB-253-20-0.0-0.5	PB-253-20-4.0-4.5	PB-253-20-6.0-6.5	PB-253-20-10.0-10.5	PB-253-20-14.0-14.5
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	6 - 6.5	7.5 - 8	14 - 14.5	0 - 0.5	4 - 4.5	6 - 6.5	10 - 10.5	14 - 14.5
Sample Date	TDS≤2500			7/25/2022	8/9/2022	7/25/2022	7/25/2022	7/25/2022	7/25/2022	8/9/2022	7/25/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	<u>65 (0.15)</u>	<u>43 (1.3)</u>	<u>6.2 (0.058)</u>	0.43 (0.056)	<u>120 (0.63)</u>	360 (8)	0.22 (0.035)	<u>1.2 (0.51)</u>
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-21	PB-253-22	PB-253-22	PB-253-23	PB-253-23	PB-253-24	PB-253-24	PB-253-24
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-21-4.0-4.5	PB-253-22-4.0-4.5	PB-253-22-10.0-10.5	PB-253-23-4.0-4.5	PB-253-23-6.0-6.5	PB-253-24-0.0-0.5	PB-253-24-4.0-4.5	PB-253-24-6.0-6.5
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	4 - 4.5	4 - 4.5	10 - 10.5	4 - 4.5	6 - 6.5	0 - 0.5	4 - 4.5	6 - 6.5
Sample Date	TDS≤2500			7/25/2022	7/26/2022	8/9/2022	8/9/2022	8/9/2022	8/9/2022	8/9/2022	8/9/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00056)	0.05 (0.031)	<u>84 (0.52)</u>	0.0027 (0.00047)	0.015 (0.00048)	0.00094 J (0.0013)	<u>2.2 (0.12)</u>	<u>8.2 (0.059)</u>
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.18)	20 (1.9)	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results

Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-253-24	PB-253-25	PB-253-25	PB-253-25	PB-253-25	PB-821-01	PB-821-02	PB-821-03
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-253-24-14.0-14.5	PB-253-25-0.0-0.5	PB-253-25-4.0-4.5	PB-253-25-6.0-6.5	PB-253-25-14.0-14.5	PB-821-01-SS01	PB-821-02-SS01	PB-821-03-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	14 - 14.5	0 - 0.5	4 - 4.5	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			8/9/2022	8/9/2022	8/9/2022	8/9/2022	8/9/2022	7/5/2022	7/5/2022	7/5/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	<u>1.1 (0.031)</u>	0.076 (0.00062)	<u>13 (0.59)</u>	<u>31 (0.061)</u>	<u>28 (0.053)</u>	ND (0.00039)	ND (0.0006)	ND (0.00063)
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	ND (0.00078)	ND (0.0012)	ND (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.0006)	ND (0.00063)
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	ND (0.00078)	ND (0.0012)	ND (0.0013)
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	ND (0.00078)	ND (0.0012)	ND (0.0013)
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	ND (0.0016)	ND (0.0024)	ND (0.0025)
Toluene	10000	10000	100	NA	NA	NA	NA	NA	ND (0.00078)	ND (0.0012)	ND (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	ND (0.0016)	ND (0.0024)	ND (0.0025)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	ND (0.0016)	ND (0.0024)	ND (0.0025)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	ND (0.0016)	ND (0.0024)	ND (0.0025)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	ND (0.1)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	0.031 J (0.1)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	ND (0.15)	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	ND (0.1)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	ND (0.15)	ND (0.14)	ND (0.14)
Chrysene	760	190000	230	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	0.098 J (0.1)
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	ND (0.19)	ND (0.18)	0.083 J (0.18)
Naphthalene	66	77	25	NA	NA	NA	NA	NA	ND (0.19)	ND (0.18)	ND (0.18)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	0.22 (0.1)
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	0.11 (0.1)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	23.1 (2.23)	68.6 (2.21)	3.59 (2.02)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-821-04	PB-821-05	PB-821-06	PB-821-07	PB-821-08	PB-821-09	PB-821-10	PB-821-11
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-821-04-SS01	PB-821-05-SS01	PB-821-06-SS01	PB-821-07-SS01	PB-821-08-SS01	PB-821-09-SS01	PB-821-10-SS01	PB-821-11-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.0005)	ND (0.0005)	ND (0.00047)	ND (0.00044)	ND (0.00046)	ND (0.00054)	ND (0.00056)	ND (0.00051)
Cumene	10000	10000	2500	ND (0.00099)	ND (0.001)	ND (0.00093)	ND (0.00088)	ND (0.00091)	ND (0.0011)	ND (0.0011)	ND (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.0005)	ND (0.0005)	ND (0.00047)	ND (0.00044)	ND (0.00046)	ND (0.00054)	ND (0.00056)	ND (0.00051)
1,2-Dichloroethane	85	98	0.5	ND (0.00099)	ND (0.001)	ND (0.00093)	ND (0.00088)	ND (0.00091)	ND (0.0011)	ND (0.0011)	ND (0.001)
Ethyl Benzene	880	1000	70	ND (0.00099)	ND (0.001)	ND (0.00093)	ND (0.00088)	ND (0.00091)	ND (0.0011)	ND (0.0011)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)	ND (0.0018)	ND (0.0022)	ND (0.0022)	ND (0.002)
Toluene	10000	10000	100	ND (0.00099)	ND (0.001)	ND (0.00093)	ND (0.00088)	ND (0.00091)	ND (0.0011)	ND (0.0011)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)	ND (0.0018)	ND (0.0022)	ND (0.0022)	ND (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)	ND (0.0018)	ND (0.0022)	ND (0.0022)	ND (0.002)
Xylenes (total)	7900	9100	1000	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)	ND (0.0018)	ND (0.0022)	ND (0.0022)	ND (0.002)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)
Chrysene	760	190000	230	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Fluorene	130000	190000	3800	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.19)	ND (0.17)
Naphthalene	66	77	25	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.19)	ND (0.17)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Pyrene	96000	190000	2200	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.1)
Metals											
Lead	1000	190000	450	6.6 (2.31)	3.81 (2.4)	5.13 (2.47)	4.4 (2.13)	3.34 (2.16)	2.77 (2.1)	13.7 (2.26)	2.82 (2.01)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-821-12	PB-822-01	PB-822-02	PB-822-03	PB-822-04	PB-822-05	PB-822-06	PB-822-07
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-821-12-SS01	PB-822-01-SS01	PB-822-02-SS01	PB-822-03-SS01	PB-822-04-SS01	PB-822-05-SS01	PB-822-06-SS01	PB-822-07-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00049)	ND (0.00052)	ND (0.00049)	ND (0.00048)	ND (0.0005)	ND (0.028)	ND (0.00043)	ND (0.00049)
Cumene	10000	10000	2500	ND (0.00098)	ND (0.001)	ND (0.00097)	ND (0.00096)	ND (0.001)	0.04 J (0.055)	ND (0.00086)	ND (0.00097)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00049)	ND (0.00052)	ND (0.00049)	ND (0.00048)	ND (0.0005)	ND (0.028)	ND (0.00043)	ND (0.00049)
1,2-Dichloroethane	85	98	0.5	ND (0.00098)	ND (0.001)	ND (0.00097)	ND (0.00096)	ND (0.001)	ND (0.055)	ND (0.00086)	ND (0.00097)
Ethyl Benzene	880	1000	70	ND (0.00098)	ND (0.001)	ND (0.00097)	ND (0.00096)	ND (0.001)	ND (0.055)	ND (0.00086)	ND (0.00097)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.0021)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.11)	ND (0.0017)	ND (0.0019)
Toluene	10000	10000	100	ND (0.00098)	ND (0.001)	ND (0.00097)	ND (0.00096)	ND (0.001)	ND (0.055)	ND (0.00086)	ND (0.00097)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.002)	ND (0.0021)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.11)	ND (0.0017)	ND (0.0019)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	ND (0.0021)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.11)	ND (0.0017)	ND (0.0019)
Xylenes (total)	7900	9100	1000	ND (0.002)	ND (0.0021)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.11)	ND (0.0017)	ND (0.0019)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(a)anthracene	130	190000	340	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(a)pyrene	91	190000	46	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Chrysene	760	190000	230	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Fluorene	130000	190000	3800	ND (0.17)	ND (0.2)	ND (0.2)	ND (0.21)	ND (0.2)	0.052 J (0.2)	ND (0.19)	ND (0.19)
Naphthalene	66	77	25	ND (0.17)	ND (0.2)	ND (0.2)	ND (0.21)	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.19)
Phenanthrene	190000	190000	10000	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Pyrene	96000	190000	2200	ND (0.1)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Metals											
Lead	1000	190000	450	6.44 (2.01)	6.86 (2.33)	6.55 (2.36)	4.1 (2.47)	4.73 (2.44)	4.65 (2.35)	4.91 (4.52)	4.27 (2.34)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-822-08	PB-822-08	PB-822-09	PB-822-09	PB-822-10	PB-822-11	PB-822-12	PB-822-13
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-822-08-SS01	PB-822-08-SS01	PB-822-09-SS01	PB-822-09-SS01	PB-822-10-SS01	PB-822-11-SS01	PB-822-12-SS01	PB-822-13-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	4 - 4.5	3 - 3.5	4 - 4.5	3 - 3.5	4.5 - 5
Sample Date				7/5/2022	7/5/2022	7/5/2022	7/13/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022
Comments				Field Duplicate		Field Duplicate					
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00048)	ND (0.00044)	ND (0.00059)	0.00021 J (0.00049)	ND (0.0005)	ND (0.028)	0.00017 J (0.00048)	ND (0.00053)
Cumene	10000	10000	2500	ND (0.00096)	ND (0.00088)	ND (0.0012)	ND (0.00097)	0.00019 J (0.001)	1.4 (0.056)	ND (0.00097)	0.0064 (0.0011)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00048)	ND (0.00044)	ND (0.00059)	ND (0.00049)	ND (0.0005)	ND (0.028)	ND (0.00048)	ND (0.00053)
1,2-Dichloroethane	85	98	0.5	ND (0.00096)	ND (0.00088)	ND (0.0012)	ND (0.00097)	ND (0.001)	ND (0.056)	ND (0.00097)	ND (0.0011)
Ethyl Benzene	880	1000	70	ND (0.00096)	ND (0.00088)	ND (0.0012)	ND (0.00097)	ND (0.001)	0.72 (0.056)	ND (0.00097)	0.013 (0.0011)
Methyl tert-butyl ether	8500	9800	2	ND (0.0019)	ND (0.0018)	ND (0.0024)	ND (0.0019)	ND (0.002)	ND (0.11)	ND (0.0019)	ND (0.0021)
Toluene	10000	10000	100	ND (0.00096)	ND (0.00088)	ND (0.0012)	ND (0.00097)	ND (0.001)	ND (0.056)	ND (0.00097)	ND (0.0011)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0019)	ND (0.0018)	ND (0.0024)	ND (0.0019)	ND (0.002)	15 (0.22)	ND (0.0019)	0.028 (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0019)	ND (0.0018)	ND (0.0024)	ND (0.0019)	ND (0.002)	5.2 (0.11)	ND (0.0019)	0.0025 (0.0021)
Xylenes (total)	7900	9100	1000	ND (0.0019)	ND (0.0018)	ND (0.0024)	ND (0.0019)	ND (0.002)	2.28 J (0.11)	ND (0.0019)	0.00272 J (0.0021)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	0.77 (0.12)	ND (0.12)	ND (0.11)
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	0.12 (0.12)	ND (0.12)	ND (0.11)
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.15)
Chrysene	760	190000	230	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	0.42 (0.12)	ND (0.12)	ND (0.11)
Fluorene	130000	190000	3800	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	2.7 (0.19)	ND (0.2)	0.22 (0.19)
Naphthalene	66	77	25	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	6.6 (0.19)	ND (0.2)	ND (0.19)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	5.2 (0.12)	ND (0.12)	0.24 (0.11)
Pyrene	96000	190000	2200	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	0.43 (0.12)	ND (0.12)	ND (0.11)
Metals											
Lead	1000	190000	450	74.3 (2.32)	9.81 (2.31)	8.8 (2.29)	11.8 (4.44)	11.9 (2.31)	8.35 (2.33)	8.59 (2.31)	6.94 (2.28)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-822-14	PB-822-15	PB-822-16	PB-822-17	PB-822-18	PB-822-19	PB-822-20	PB-823-01
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-822-14-SS01	PB-822-15-SS01	PB-822-16-SS01	PB-822-17-SS01	PB-822-18-SS01	PB-822-19-SS01	PB-822-20-SS01	PB-823-01-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	4.5 - 5
Sample Date				7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.016 J (0.027)	0.0011 (0.00052)	ND (0.00047)	ND (0.00046)	ND (0.00052)	ND (0.00043)	ND (0.00048)	ND (0.032)
Cumene	10000	10000	2500	0.42 (0.054)	0.003 (0.001)	ND (0.00093)	ND (0.00093)	ND (0.001)	ND (0.00086)	ND (0.00096)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.027)	ND (0.00052)	ND (0.00047)	ND (0.00046)	ND (0.00052)	ND (0.00043)	ND (0.00048)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.054)	ND (0.001)	ND (0.00093)	ND (0.00093)	ND (0.001)	ND (0.00086)	ND (0.00096)	NA
Ethyl Benzene	880	1000	70	1.7 (0.054)	0.009 (0.001)	ND (0.00093)	ND (0.00093)	ND (0.001)	ND (0.00086)	ND (0.00096)	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.11)	ND (0.0021)	ND (0.0019)	ND (0.0018)	ND (0.0021)	ND (0.0017)	ND (0.0019)	NA
Toluene	10000	10000	100	0.12 (0.054)	0.0057 (0.001)	ND (0.00093)	ND (0.00093)	ND (0.001)	ND (0.00086)	ND (0.00096)	NA
1,2,4-Trimethylbenzene	4700	5400	300	25 (0.54)	0.16 (0.0021)	ND (0.0019)	ND (0.0018)	ND (0.0021)	ND (0.0017)	ND (0.0019)	NA
1,3,5-Trimethylbenzene	4700	5400	93	8.5 (0.11)	0.049 (0.0021)	ND (0.0019)	ND (0.0018)	ND (0.0021)	ND (0.0017)	ND (0.0019)	NA
Xylenes (total)	7900	9100	1000	8.7 J (0.11)	0.097 J (0.0021)	ND (0.0019)	ND (0.0018)	ND (0.0021)	ND (0.0017)	ND (0.0019)	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	1.1 (0.59)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.078 J (0.12)
Benzo(a)anthracene	130	190000	340	ND (0.59)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.054 J (0.12)
Benzo(a)pyrene	91	190000	46	ND (0.78)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	ND (0.59)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.78)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)
Chrysene	760	190000	230	0.2 J (0.59)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.056 J (0.12)
Fluorene	130000	190000	3800	4.9 (0.98)	ND (0.2)	ND (0.2)	0.028 J (0.19)	ND (0.2)	ND (0.2)	ND (0.19)	0.25 (0.2)
Naphthalene	66	77	25	3.4 (0.98)	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.19)	1.6 (0.2)
Phenanthrene	190000	190000	10000	14 (0.59)	ND (0.12)	ND (0.12)	0.071 J (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.37 (0.12)
Pyrene	96000	190000	2200	0.58 J (0.59)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.087 J (0.12)
Metals											
Lead	1000	190000	450	12.6 (2.29)	4.75 (2.34)	10.6 (2.28)	5.91 (2.3)	4.52 (2.33)	4.65 (2.28)	5.42 (2.25)	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-823-02	PB-823-03	PB-823-04	PB-823-05	PB-823-06	PB-823-07	PB-823-08	PB-823-09
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-823-02-SS01	PB-823-03-SS01	PB-823-04-SS01	PB-823-05-SS01	PB-823-06-SS01	PB-823-07-SS01	PB-823-08-SS01	PB-823-09-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	2 - 2.5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00048)	ND (0.00054)	ND (0.034)	ND (0.034)	ND (0.00069)	ND (0.00058)	ND (0.0006)	ND (0.00057)
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.11)	ND (0.12)	0.12 (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.11)	0.042 J (0.12)	0.075 J (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.11)	ND (0.12)	0.036 J (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.15)	ND (0.16)	0.024 J (0.16)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)
Chrysene	760	190000	230	ND (0.12)	ND (0.11)	0.04 J (0.12)	0.073 J (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Fluorene	130000	190000	3800	ND (0.2)	ND (0.19)	0.21 (0.2)	0.39 (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.2)
Naphthalene	66	77	25	ND (0.2)	ND (0.19)	0.9 (0.2)	0.81 (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.2)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.11)	0.32 (0.12)	0.5 (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Pyrene	96000	190000	2200	ND (0.12)	ND (0.11)	0.05 J (0.12)	0.13 (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results

Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-823-10	PB-823-11	PB-823-11	PB-823-12	PB-823-13	PB-823-14	PB-823-15	PB-824-01
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-823-10-SS01	PB-823-11-SS01	DUP-36	PB-823-12-SS01	PB-823-13-SS01	PB-823-14-SS01	PB-823-15-SS01	PB-824-01-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments				Field Duplicate							
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00059)	ND (0.00051)	ND (0.00061)	ND (0.00052)	ND (0.00058)	ND (0.00058)	ND (0.00058)	ND (0.00046)
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	NA	NA	ND (0.00093)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	ND (0.00093)
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	ND (0.0019)
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	ND (0.00093)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	ND (0.0019)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	ND (0.0019)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	0.094 J (0.12)	NA
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	NA
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	NA
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	NA
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.15)	0.025 J (0.15)	ND (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	NA
Chrysene	760	190000	230	ND (0.12)	ND (0.11)	0.024 J (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	NA
Fluorene	130000	190000	3800	ND (0.2)	ND (0.18)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	0.55 (0.2)	NA
Naphthalene	66	77	25	ND (0.2)	ND (0.18)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	0.062 J (0.2)	ND (0.19)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.11)	0.05 J (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	1 (0.12)	NA
Pyrene	96000	190000	2200	ND (0.12)	ND (0.11)	0.043 J (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	0.11 J (0.12)	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1

Summary of PESRM Soil Analytical Results

Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-824-02	PB-824-03	PB-824-04	PB-824-05	PB-824-06	PB-824-07	PB-824-08	PB-824-08
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-824-02-SS01	PB-824-03-SS01	PB-824-04-SS01	PB-824-05-SS01	PB-824-06-SS01	PB-824-07-SS01	PB-824-08-SS01	PB-824-08
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	DUP-34
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	Subsurface Soil
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments	Field Duplicate										
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00058)	ND (0.00046)	ND (0.00047)	ND (0.0005)	ND (0.0005)	ND (0.00044)	ND (0.00048)	ND (0.00054)
Cumene	10000	10000	2500	ND (0.0012)	ND (0.00093)	ND (0.00093)	ND (0.00099)	ND (0.001)	ND (0.00088)	ND (0.00095)	ND (0.0011)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0012)	ND (0.00093)	ND (0.00093)	ND (0.00099)	ND (0.001)	ND (0.00088)	ND (0.00095)	ND (0.0011)
Methyl tert-butyl ether	8500	9800	2	ND (0.0023)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0018)	ND (0.0019)	ND (0.0021)
Toluene	10000	10000	100	ND (0.0012)	ND (0.00093)	ND (0.00093)	ND (0.00099)	ND (0.001)	ND (0.00088)	ND (0.00095)	ND (0.0011)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0023)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0018)	ND (0.0019)	ND (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0023)	ND (0.0019)	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0018)	ND (0.0019)	ND (0.0021)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.17)	ND (0.21)	ND (0.18)	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-824-09	PB-824-10	PB-824-11	PB-824-12	PB-824-13	PB-824-14	PB-824-15	PB-824-16
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-824-09-SS01	PB-824-10-SS01	PB-824-11-SS01	PB-824-12-SS01	PB-824-13-SS01	PB-824-14-SS01	PB-824-15-SS01	PB-824-16-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	4 - 4.5	4 - 4.5	3 - 3.5	4 - 4.5	4 - 4.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00044)	ND (0.026)	ND (0.03)	ND (0.00048)	ND (0.03)	ND (0.03)	ND (0.00052)	ND (0.00061)
Cumene	10000	10000	2500	ND (0.00089)	0.11 (0.051)	0.027 J (0.059)	ND (0.00096)	0.16 (0.06)	0.076 (0.061)	ND (0.001)	ND (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.00089)	0.0084 J (0.051)	ND (0.059)	ND (0.00096)	0.016 J (0.06)	ND (0.061)	ND (0.001)	ND (0.0012)
Methyl tert-butyl ether	8500	9800	2	ND (0.0018)	ND (0.1)	ND (0.12)	ND (0.0019)	ND (0.12)	ND (0.12)	ND (0.0021)	ND (0.0024)
Toluene	10000	10000	100	ND (0.00089)	ND (0.051)	ND (0.059)	ND (0.00096)	ND (0.06)	ND (0.061)	ND (0.001)	ND (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0018)	0.071 J (0.1)	0.24 (0.12)	ND (0.0019)	0.78 (0.12)	0.29 (0.12)	ND (0.0021)	ND (0.0024)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0018)	0.034 J (0.1)	0.037 J (0.12)	ND (0.0019)	0.39 (0.12)	0.045 J (0.12)	ND (0.0021)	ND (0.0024)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.19)	0.08 J (0.19)	0.14 J (0.2)	ND (0.19)	0.15 J (0.2)	0.11 J (0.2)	ND (0.19)	ND (0.18)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-824-17	PB-824-18	PB-824-19	PB-824-20	PB-824-21	PB-824-22	PB-824-23	PB-824-24
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-824-17-SS01	PB-824-18-SS01	PB-824-19-SS01	PB-824-20-SS01	PB-824-21-SS01	PB-824-22-SS01	PB-824-23-SS01	PB-824-24-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00052)	ND (0.00052)	ND (0.00045)	ND (0.00047)	ND (0.00053)	ND (0.00045)	ND (0.00047)	ND (0.028)
Cumene	10000	10000	2500	0.00016 J (0.001)	ND (0.001)	ND (0.00091)	ND (0.00095)	ND (0.0011)	ND (0.00091)	ND (0.00094)	0.68 (0.056)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.001)	ND (0.001)	ND (0.00091)	ND (0.00095)	ND (0.0011)	ND (0.00091)	ND (0.00094)	0.5 (0.056)
Methyl tert-butyl ether	8500	9800	2	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0019)	ND (0.11)
Toluene	10000	10000	100	ND (0.001)	ND (0.001)	ND (0.00091)	ND (0.00095)	ND (0.0011)	ND (0.00091)	ND (0.00094)	ND (0.056)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0019)	6.9 (0.11)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0019)	0.02 J (0.11)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.18)	ND (0.2)	1.8 (0.19)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-824-25	PB-824-26	PB-825-01	PB-825-02	PB-825-03	PB-825-04	PB-825-05	PB-825-06
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-824-25-SS01	PB-824-26-SS01	PB-825-01-SS01	PB-825-02-SS01	PB-825-03-SS01	PB-825-04-SS01	PB-825-05-SS01	PB-825-06-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	1 - 1.5	3 - 3.5	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00046)	ND (0.00049)	ND (0.00054)	ND (0.00077)	ND (0.0006)	ND (0.00049)	ND (0.00051)	ND (0.00062)
Cumene	10000	10000	2500	ND (0.00093)	ND (0.00098)	0.021 (0.0011)	ND (0.0015)	ND (0.0012)	ND (0.00097)	0.0012 (0.001)	ND (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.00093)	ND (0.00098)	0.018 (0.0011)	ND (0.0015)	ND (0.0012)	ND (0.00097)	0.0011 (0.001)	ND (0.0012)
Methyl tert-butyl ether	8500	9800	2	ND (0.0018)	ND (0.002)	ND (0.0022)	ND (0.0031)	ND (0.0024)	ND (0.0019)	ND (0.002)	ND (0.0025)
Toluene	10000	10000	100	ND (0.00093)	ND (0.00098)	ND (0.0011)	ND (0.0015)	ND (0.0012)	ND (0.00097)	ND (0.001)	ND (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0018)	ND (0.002)	0.2 (0.0022)	ND (0.0031)	ND (0.0024)	ND (0.0019)	0.0025 (0.002)	ND (0.0025)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0018)	ND (0.002)	0.2 (0.0022)	ND (0.0031)	ND (0.0024)	ND (0.0019)	0.0022 (0.002)	ND (0.0025)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.2)	0.064 J (0.2)	0.18 J (0.19)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.2)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-825-07	PB-825-08	PB-825-09	PB-825-10	PB-825-11	PB-825-12	PB-825-13	PB-825-14
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-825-07-SS01	PB-825-08-SS01	PB-825-09-SS01	PB-825-10-SS01	PB-825-11-SS01	PB-825-12-SS01	PB-825-13-SS01	PB-825-14-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	1 - 1.5	3 - 3.5	3.5 - 4	3 - 3.5	4 - 4.5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00058)	ND (0.00068)	ND (0.0039)	ND (0.00054)	ND (0.00054)	ND (0.00062)	ND (0.00064)	ND (0.00072)
Cumene	10000	10000	2500	ND (0.0012)	ND (0.0014)	ND (0.0078)	ND (0.0011)	ND (0.0011)	0.00013 J (0.0012)	0.00022 J (0.0013)	0.009 (0.0014)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0012)	ND (0.0014)	0.0057 J (0.0078)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	0.0032 (0.0014)
Methyl tert-butyl ether	8500	9800	2	ND (0.0023)	ND (0.0027)	ND (0.016)	ND (0.0022)	ND (0.0021)	ND (0.0025)	ND (0.0026)	ND (0.0029)
Toluene	10000	10000	100	ND (0.0012)	ND (0.0014)	ND (0.0078)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.0014)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0023)	ND (0.0027)	ND (0.016)	ND (0.0022)	ND (0.0021)	ND (0.0025)	ND (0.0026)	0.12 (0.0029)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0023)	ND (0.0027)	ND (0.016)	ND (0.0022)	ND (0.0021)	ND (0.0025)	ND (0.0026)	0.039 (0.0029)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.2)	ND (0.2)	ND (0.27)	ND (0.19)	ND (0.2)	ND (0.22)	ND (0.2)	ND (0.2)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-825-15	PB-825-16	PB-825-17	PB-825-18	PB-825-19	PB-833-01	PB-833-02	PB-833-03
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-825-15-SS01	PB-825-16-SS01	PB-825-17-SS01	PB-825-18-SS01	PB-825-19-SS01	PB-833-01-SS01	PB-833-02-SS01	PB-833-03-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	2.5 - 3	3 - 3.5	4.5 - 5	1.5 - 2	4 - 4.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/5/2022	7/5/2022	7/5/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.013 J (0.03)	ND (0.00064)	0.098 (0.031)	ND (0.067)	ND (0.031)	ND (0.036)	0.024 J (0.037)	ND (0.00042)
Cumene	10000	10000	2500	1.4 (0.061)	0.001 J (0.0013)	1.6 (0.062)	0.62 (0.13)	5.9 (0.062)	0.068 J (0.072)	0.014 J (0.075)	ND (0.00084)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	ND (0.036)	ND (0.037)	ND (0.00042)
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	ND (0.072)	ND (0.075)	ND (0.00084)
Ethyl Benzene	880	1000	70	0.018 J (0.061)	ND (0.0013)	3.6 (0.062)	0.1 J (0.13)	7.5 (0.062)	0.034 J (0.072)	0.098 (0.075)	ND (0.00084)
Methyl tert-butyl ether	8500	9800	2	ND (0.12)	ND (0.0026)	ND (0.12)	ND (0.27)	ND (0.12)	ND (0.14)	ND (0.15)	ND (0.0017)
Toluene	10000	10000	100	ND (0.061)	ND (0.0013)	0.25 (0.062)	ND (0.13)	0.19 (0.062)	0.06 J (0.072)	0.049 J (0.075)	ND (0.00084)
1,2,4-Trimethylbenzene	4700	5400	300	0.16 (0.12)	0.002 J (0.0026)	15 (0.12)	6 (0.27)	42 (1.2)	0.054 J (0.14)	0.12 J (0.15)	ND (0.0017)
1,3,5-Trimethylbenzene	4700	5400	93	0.016 J (0.12)	0.0003 J (0.0026)	1.1 (0.12)	4.9 (0.27)	18 (0.12)	0.017 J (0.14)	0.029 J (0.15)	ND (0.0017)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	0.162 J (0.14)	0.275 J (0.15)	ND (0.0017)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	ND (0.11)	0.76 (0.56)	ND (0.11)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	ND (0.11)	0.16 J (0.56)	ND (0.11)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	ND (0.14)	ND (0.74)	ND (0.15)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	ND (0.11)	0.18 J (0.56)	ND (0.11)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	ND (0.14)	0.12 J (0.74)	ND (0.15)
Chrysene	760	190000	230	NA	NA	NA	NA	NA	ND (0.11)	0.4 J (0.56)	ND (0.11)
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	0.061 J (0.18)	ND (0.93)	ND (0.19)
Naphthalene	66	77	25	0.13 J (0.19)	ND (0.22)	0.2 (0.19)	0.39 (0.19)	1.2 (0.19)	0.022 J (0.18)	0.16 J (0.93)	ND (0.19)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	0.079 J (0.11)	1.2 (0.56)	ND (0.11)
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	0.018 J (0.11)	1.2 (0.56)	ND (0.11)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	24.1 (2.06)	278 (2.12)	29 (2.23)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-833-04	PB-833-05	PB-833-06	PB-833-07	PB-833-08	PB-833-09	PB-833-10	PB-833-11
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-833-04-SS01	PB-833-05-SS01	PB-833-06-SS01	PB-833-07-SS01	PB-833-08-SS01	PB-833-09-SS01	PB-833-10-SS01	PB-833-11-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	2 - 2.5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5
Sample Date	TDS≤2500			7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.0005)	ND (0.00069)	ND (0.00054)	ND (0.00056)	ND (0.00063)	ND (0.00066)	ND (0.00044)	ND (0.00052)
Cumene	10000	10000	2500	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.00088)	ND (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.0005)	ND (0.00069)	ND (0.00054)	ND (0.00056)	ND (0.00063)	ND (0.00066)	ND (0.00044)	ND (0.00052)
1,2-Dichloroethane	85	98	0.5	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.00088)	ND (0.001)
Ethyl Benzene	880	1000	70	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.00088)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.0028)	ND (0.0022)	ND (0.0022)	ND (0.0025)	ND (0.0026)	ND (0.0018)	ND (0.0021)
Toluene	10000	10000	100	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.00088)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.002)	ND (0.0028)	ND (0.0022)	ND (0.0022)	ND (0.0025)	ND (0.0026)	ND (0.0018)	ND (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	ND (0.0028)	ND (0.0022)	ND (0.0022)	ND (0.0025)	ND (0.0026)	ND (0.0018)	ND (0.0021)
Xylenes (total)	7900	9100	1000	ND (0.002)	ND (0.0028)	ND (0.0022)	ND (0.0022)	ND (0.0025)	ND (0.0026)	ND (0.0018)	ND (0.0021)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.11)	0.029 J (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.14)	ND (0.16)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.15)	ND (0.15)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.11)	0.045 J (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.14)	ND (0.16)	ND (0.15)	0.024 J (0.14)	ND (0.15)	ND (0.15)	ND (0.15)
Chrysene	760	190000	230	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.11)	0.028 J (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Fluorene	130000	190000	3800	ND (0.19)	ND (0.18)	ND (0.2)	ND (0.19)	ND (0.18)	ND (0.19)	ND (0.19)	ND (0.18)
Naphthalene	66	77	25	ND (0.19)	ND (0.18)	ND (0.2)	ND (0.19)	ND (0.18)	ND (0.19)	ND (0.19)	ND (0.18)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.11)	ND (0.12)	0.031 J (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Pyrene	96000	190000	2200	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.11)	0.038 J (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Metals											
Lead	1000	190000	450	6.95 (2.22)	5.16 (2.14)	8.48 (2.34)	16.9 (2.24)	121 (10.7)	31.7 (2.2)	69.3 (4.47)	128 (2.2)

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-833-12	PB-833-13	PB-833-14	PB-833-15	PB-833-16	PB-835-01	PB-835-02	PB-835-03
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-833-12-SS01	PB-833-13-SS01	PB-833-14-SS01	PB-833-15-SS01	PB-833-16-SS01	PB-835-01-SS01	PB-835-02-SS01	PB-835-03-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	4 - 4.5	4.5 - 5	3 - 3.5	4.5 - 5	4 - 4.5	4 - 4.5	3 - 3.5	4.5 - 5
Sample Date	TDS≤2500			7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/6/2022	7/6/2022	7/6/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00051)	ND (0.031)	ND (0.00053)	ND (0.00044)	ND (0.0007)	ND (0.00052)	ND (0.00053)	ND (0.03)
Cumene	10000	10000	2500	ND (0.001)	0.029 J (0.061)	ND (0.0011)	ND (0.00087)	0.00026 J (0.0014)	0.00014 J (0.001)	ND (0.001)	1.1 (0.059)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00051)	ND (0.031)	ND (0.00053)	ND (0.00044)	ND (0.0007)	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	ND (0.001)	ND (0.061)	ND (0.0011)	ND (0.00087)	ND (0.0014)	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.001)	0.016 J (0.061)	ND (0.0011)	ND (0.00087)	ND (0.0014)	ND (0.001)	ND (0.001)	0.014 J (0.059)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.12)	ND (0.0021)	ND (0.0017)	ND (0.0028)	ND (0.0021)	ND (0.0021)	ND (0.12)
Toluene	10000	10000	100	ND (0.001)	ND (0.061)	ND (0.0011)	ND (0.00087)	ND (0.0014)	ND (0.001)	ND (0.001)	ND (0.059)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.002)	0.68 (0.12)	ND (0.0021)	ND (0.0017)	ND (0.0028)	ND (0.0021)	ND (0.0021)	ND (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	0.26 (0.12)	ND (0.0021)	ND (0.0017)	0.00044 J (0.0028)	ND (0.0021)	ND (0.0021)	ND (0.12)
Xylenes (total)	7900	9100	1000	ND (0.002)	0.1165 J (0.12)	ND (0.0021)	ND (0.0017)	ND (0.0028)	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.18 (0.12)	0.06 J (0.11)
Benzo(a)anthracene	130	190000	340	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.13 (0.11)	0.53 (0.12)	0.036 J (0.11)
Benzo(a)pyrene	91	190000	46	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	0.18 (0.15)	0.55 (0.16)	ND (0.15)
Benzo(b)fluoranthene	76	190000	170	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.22 (0.11)	0.61 (0.12)	0.043 J (0.11)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	0.11 J (0.15)	0.29 (0.16)	ND (0.15)
Chrysene	760	190000	230	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.12 (0.11)	0.5 (0.12)	0.036 J (0.11)
Fluorene	130000	190000	3800	ND (0.19)	0.085 J (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	0.05 J (0.19)	0.063 J (0.2)	0.23 (0.19)
Naphthalene	66	77	25	ND (0.19)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	0.062 J (0.19)	0.099 J (0.2)	0.3 (0.19)
Phenanthrene	190000	190000	10000	ND (0.11)	0.16 (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.12 (0.11)	0.6 (0.12)	0.41 (0.11)
Pyrene	96000	190000	2200	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.15 (0.11)	0.78 (0.12)	0.085 J (0.11)
Metals											
Lead	1000	190000	450	41.6 (2.22)	7.72 (2.24)	8.59 (2.19)	127 (2.2)	123 (2.13)	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-835-04	PB-835-05	PB-835-06	PB-835-07	PB-835-08	PB-835-09	PB-835-09	PB-835-10
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-835-04-SS01	PB-835-05-SS01	PB-835-06-SS01	PB-835-07-SS01	PB-835-08-SS01	PB-835-09-SS01	PB-835-09	PB-835-10-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	DUP-35	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil	Aquifer	2 - 2.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	2.5 - 3	2.5 - 3
Sample Date	TDS≤2500			7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022
Comments	Field Duplicate										
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00054)	0.31 (0.024)	ND (0.03)	ND (0.031)	ND (0.029)	ND (0.00052)	ND (0.00061)	0.011 J (0.028)
Cumene	10000	10000	2500	0.00029 J (0.0011)	2.4 (0.048)	1.2 (0.06)	1.1 (0.063)	0.0084 J (0.058)	ND (0.001)	ND (0.0012)	0.72 (0.056)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0011)	1.5 (0.048)	0.2 (0.06)	ND (0.063)	ND (0.058)	ND (0.001)	ND (0.0012)	0.57 (0.056)
Methyl tert-butyl ether	8500	9800	2	ND (0.0022)	ND (0.096)	ND (0.12)	ND (0.12)	ND (0.12)	0.00057 J (0.0021)	ND (0.0024)	ND (0.11)
Toluene	10000	10000	100	ND (0.0011)	ND (0.048)	ND (0.06)	ND (0.063)	ND (0.058)	ND (0.001)	ND (0.0012)	ND (0.056)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0022)	8.3 (0.096)	0.24 (0.12)	ND (0.12)	ND (0.12)	ND (0.0021)	ND (0.0024)	9.4 (0.11)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0022)	2.6 (0.096)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0021)	ND (0.0024)	2.8 (0.11)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	0.32 (0.12)	0.69 (0.12)	0.12 (0.12)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	0.21 (0.12)
Benzo(a)anthracene	130	190000	340	0.71 (0.12)	0.17 (0.12)	0.023 J (0.12)	ND (0.12)	ND (0.12)	0.14 (0.11)	0.11 J (0.12)	0.63 (0.12)
Benzo(a)pyrene	91	190000	46	0.66 (0.16)	0.17 (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	0.2 (0.15)	0.13 J (0.16)	0.88 (0.16)
Benzo(b)fluoranthene	76	190000	170	0.79 (0.12)	0.2 (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	0.21 (0.11)	0.14 (0.12)	0.87 (0.12)
Benzo(g,h,i)perylene	190000	190000	180	0.32 (0.16)	0.1 J (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	0.09 J (0.15)	0.075 J (0.16)	0.36 (0.16)
Chrysene	760	190000	230	0.76 (0.12)	0.28 (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	0.13 (0.11)	0.11 J (0.12)	0.57 (0.12)
Fluorene	130000	190000	3800	0.2 J (0.21)	2.9 (0.19)	0.5 (0.2)	0.2 (0.2)	0.044 J (0.19)	ND (0.19)	0.021 J (0.2)	0.55 (0.2)
Naphthalene	66	77	25	0.21 (0.21)	8.1 (0.96)	0.3 (0.2)	0.032 J (0.2)	ND (0.19)	ND (0.19)	ND (0.2)	0.94 (0.2)
Phenanthrene	190000	190000	10000	1 (0.12)	4.7 (0.12)	1 (0.12)	0.35 (0.12)	0.073 J (0.12)	0.068 J (0.11)	0.13 (0.12)	1.1 (0.12)
Pyrene	96000	190000	2200	0.99 (0.12)	0.78 (0.12)	0.1 J (0.12)	ND (0.12)	ND (0.12)	0.15 (0.11)	0.16 (0.12)	0.71 (0.12)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-835-11	PB-835-12	PB-835-13	PB-835-14	PB-835-15	PB-835-16	PB-835-17	PB-835-18
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-835-11-SS01	PB-835-12-SS01	PB-835-13-SS01	PB-835-14-SS01	PB-835-15-SS01	PB-835-16-SS01	PB-835-17-SS01	PB-835-18-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	4.5 - 5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	1 - 1.5	4 - 4.5	3 - 3.5
Sample Date	TDS≤2500			7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00055)	0.001 (0.00053)	ND (0.00051)	ND (0.00056)	ND (0.0008)	ND (0.00055)	ND (0.00061)	ND (0.00049)
Cumene	10000	10000	2500	0.00098 J (0.0011)	0.00016 J (0.001)	ND (0.001)	ND (0.0011)	ND (0.0016)	ND (0.0011)	ND (0.0012)	ND (0.00098)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.00023 J (0.0011)	ND (0.001)	ND (0.001)	ND (0.0011)	ND (0.0016)	ND (0.0011)	ND (0.0012)	ND (0.00098)
Methyl tert-butyl ether	8500	9800	2	0.00028 J (0.0022)	0.00022 J (0.0021)	ND (0.002)	0.00053 J (0.0022)	ND (0.0032)	ND (0.0022)	ND (0.0024)	ND (0.002)
Toluene	10000	10000	100	ND (0.0011)	ND (0.001)	ND (0.001)	ND (0.0011)	ND (0.0016)	ND (0.0011)	ND (0.0012)	ND (0.00098)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0022)	ND (0.0021)	ND (0.002)	ND (0.0022)	ND (0.0032)	ND (0.0022)	ND (0.0024)	ND (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0022)	ND (0.0021)	ND (0.002)	ND (0.0022)	ND (0.0032)	ND (0.0022)	ND (0.0024)	ND (0.002)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	0.1 J (0.11)
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.12)	0.11 (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.045 J (0.12)	0.28 (0.11)
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.16)	0.14 J (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	0.05 J (0.16)	0.3 (0.14)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.12)	0.15 (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.056 J (0.12)	0.34 (0.11)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.16)	0.065 J (0.15)	ND (0.16)	ND (0.16)	ND (0.16)	0.027 J (0.16)	0.16 (0.14)
Chrysene	760	190000	230	ND (0.12)	ND (0.12)	0.1 J (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.045 J (0.12)	0.29 (0.11)
Fluorene	130000	190000	3800	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	0.045 J (0.18)
Naphthalene	66	77	25	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.2)	0.039 J (0.2)	0.17 J (0.18)
Phenanthrene	190000	190000	10000	ND (0.12)	ND (0.12)	0.095 J (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.04 J (0.12)	0.37 (0.11)
Pyrene	96000	190000	2200	ND (0.12)	ND (0.12)	0.14 (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	0.061 J (0.12)	0.41 (0.11)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-836-01	PB-836-02	PB-836-03	PB-836-04	PB-836-04	PB-836-05	PB-836-06	PB-836-07
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-836-01-SS01	PB-836-02-SS01	PB-836-03-SS01	PB-836-04-SS01	DUP-33	PB-836-05-SS01	PB-836-06-SS01	PB-836-07-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022
Comments	Field Duplicate										
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.00051)	ND (0.00054)	ND (0.00085)	ND (0.0006)	ND (0.00072)	0.00078 (0.00073)	0.0003 J (0.00053)	0.0004 J (0.00046)
Cumene	10000	10000	2500	0.0068 (0.001)	0.0029 (0.0011)	0.17 (0.0017)	0.65 (0.061)	ND (0.0014)	0.0054 (0.0015)	0.00031 J (0.0011)	0.00016 J (0.00092)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.00035 J (0.001)	0.00069 J (0.0011)	0.00085 J (0.0017)	0.034 J (0.061)	ND (0.0014)	0.0012 J (0.0015)	ND (0.0011)	ND (0.00092)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.0022)	ND (0.0034)	ND (0.0024)	ND (0.0029)	ND (0.0029)	ND (0.0021)	ND (0.0018)
Toluene	10000	10000	100	ND (0.001)	ND (0.0011)	ND (0.0017)	ND (0.0012)	ND (0.0014)	0.0013 J (0.0015)	ND (0.0011)	ND (0.00092)
1,2,4-Trimethylbenzene	4700	5400	300	0.00047 J (0.002)	0.0029 (0.0022)	0.0029 J (0.0034)	0.044 J (0.12)	ND (0.0029)	0.0016 J (0.0029)	ND (0.0021)	ND (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	0.0011 J (0.0022)	0.00063 J (0.0034)	ND (0.0024)	ND (0.0029)	0.0026 J (0.0029)	ND (0.0021)	ND (0.0018)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	0.24 (0.11)	0.11 J (0.12)	ND (0.12)	1.2 (0.12)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.12)
Benzo(a)anthracene	130	190000	340	0.26 (0.11)	0.21 (0.12)	0.061 J (0.12)	2.2 (0.12)	ND (0.1)	0.038 J (0.11)	0.096 J (0.11)	ND (0.12)
Benzo(a)pyrene	91	190000	46	0.4 (0.15)	0.2 (0.16)	0.076 J (0.16)	3.2 (0.15)	ND (0.14)	ND (0.15)	0.12 J (0.15)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	0.43 (0.11)	0.22 (0.12)	0.086 J (0.12)	2.9 (0.12)	ND (0.1)	0.047 J (0.11)	0.15 (0.11)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	0.28 (0.15)	0.11 J (0.16)	0.068 J (0.16)	2.4 (0.15)	ND (0.14)	0.025 J (0.15)	0.07 J (0.15)	ND (0.16)
Chrysene	760	190000	230	0.27 (0.11)	0.2 (0.12)	0.066 J (0.12)	2.2 (0.12)	ND (0.1)	0.041 J (0.11)	0.1 J (0.11)	ND (0.12)
Fluorene	130000	190000	3800	0.75 (0.18)	0.058 J (0.2)	0.03 J (0.2)	0.76 (0.19)	ND (0.18)	ND (0.19)	ND (0.19)	ND (0.2)
Naphthalene	66	77	25	0.24 (0.18)	0.056 J (0.2)	0.037 J (0.2)	0.24 (0.19)	ND (0.18)	0.029 J (0.19)	ND (0.19)	ND (0.2)
Phenanthrene	190000	190000	10000	1.2 (0.11)	0.37 (0.12)	0.07 J (0.12)	5.6 (0.12)	ND (0.1)	0.056 J (0.11)	0.079 J (0.11)	ND (0.12)
Pyrene	96000	190000	2200	0.54 (0.11)	0.33 (0.12)	0.1 J (0.12)	7.4 (0.12)	ND (0.1)	0.057 J (0.11)	0.14 (0.11)	ND (0.12)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H1
Summary of PESRM Soil Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-836-08	PB-836-09	PB-836-10	PB-836-11	PB-836-12	PB-836-13	PB-836-14	PB-836-15
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-836-08-SS01	PB-836-09-SS01	PB-836-10-SS01	PB-836-11-SS01	PB-836-12-SS01	PB-836-13-SS01	PB-836-14-SS01	PB-836-15-SS01
Matrix	Contact with	Contact with	GW MSCs Used	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil	Subsurface Soil
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	TDS≤2500			7/5/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.0005 J (0.00062)	0.0013 (0.00059)	0.011 (0.00063)	0.00034 J (0.00061)	0.00029 J (0.00065)	0.0016 (0.00088)	0.00032 J (0.00056)	ND (0.00064)
Cumene	10000	10000	2500	0.0002 J (0.0012)	0.00032 J (0.0012)	0.0016 (0.0013)	0.00063 J (0.0012)	0.0011 J (0.0013)	0.0014 J (0.0018)	0.00016 J (0.0011)	ND (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0012)	0.00024 J (0.0012)	0.00086 J (0.0013)	ND (0.0012)	ND (0.0013)	0.001 J (0.0018)	ND (0.0011)	ND (0.0013)
Methyl tert-butyl ether	8500	9800	2	ND (0.0025)	ND (0.0024)	0.00041 J (0.0025)	0.00036 J (0.0024)	0.00043 J (0.0026)	ND (0.0035)	ND (0.0022)	ND (0.0026)
Toluene	10000	10000	100	ND (0.0012)	ND (0.0012)	0.00092 J (0.0013)	ND (0.0012)	ND (0.0013)	ND (0.0018)	ND (0.0011)	ND (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0025)	0.0007 J (0.0024)	0.002 J (0.0025)	ND (0.0024)	ND (0.0026)	0.0079 (0.0035)	ND (0.0022)	ND (0.0026)
1,3,5-Trimethylbenzene	4700	5400	93	0.00028 J (0.0025)	0.00084 J (0.0024)	0.0024 J (0.0025)	ND (0.0024)	ND (0.0026)	0.0068 (0.0035)	ND (0.0022)	ND (0.0026)
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	ND (0.12)	0.32 (0.12)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Benzo(a)anthracene	130	190000	340	ND (0.12)	0.66 (0.12)	0.044 J (0.13)	ND (0.11)	ND (0.12)	0.082 J (0.12)	ND (0.12)	ND (0.12)
Benzo(a)pyrene	91	190000	46	ND (0.16)	1.7 (0.15)	0.089 J (0.17)	ND (0.15)	ND (0.16)	0.089 J (0.15)	ND (0.16)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	1.3 (0.12)	0.068 J (0.13)	ND (0.11)	ND (0.12)	0.1 J (0.12)	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	1 (0.15)	0.07 J (0.17)	ND (0.15)	ND (0.16)	0.048 J (0.15)	ND (0.16)	ND (0.16)
Chrysene	760	190000	230	ND (0.12)	1.3 (0.12)	0.15 (0.13)	ND (0.11)	ND (0.12)	0.086 J (0.12)	ND (0.12)	ND (0.12)
Fluorene	130000	190000	3800	ND (0.2)	0.22 (0.19)	ND (0.21)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)
Naphthalene	66	77	25	ND (0.2)	0.55 (0.19)	ND (0.21)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)
Phenanthrene	190000	190000	10000	ND (0.12)	0.97 (0.12)	ND (0.13)	ND (0.11)	ND (0.12)	0.074 J (0.12)	ND (0.12)	ND (0.12)
Pyrene	96000	190000	2200	ND (0.12)	1.1 (0.12)	ND (0.13)	ND (0.11)	ND (0.12)	0.13 (0.12)	ND (0.12)	ND (0.12)
Metals											
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 Boldfaced concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 4 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H2
Summary of Soil QAQC Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
AOI	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02
Field Sample ID	FB-211207	TB-211207	FB-211208-1	FB-211208-2	TB-211208	FB-070522-1	FB-070522-2	FB-070522-3	FB-070522-4	FB-070522-5	TB-070522	FB-070622-1	FB-070622-2
Matrix	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water
Sample Date	12/7/2021	12/7/2021	12/8/2021	12/8/2021	12/8/2021	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/5/2022	7/6/2022	7/6/2022
Comment	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank
Volatile Organic Compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds													
Anthracene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)
Benzo(a)anthracene	0.02 J (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	0.03 J (0.05)	ND (0.05)	0.03 J (0.05)	0.02 J (0.05)	NA	ND (0.05)	0.03 J (0.05)
Benzo(a)pyrene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	0.02 J (0.1)
Benzo(b)fluoranthene	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	0.06 (0.05)
Benzo(g,h,i)perylene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	0.07 J (0.1)
Chrysene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	0.01 J (0.1)	ND (0.1)	0.01 J (0.1)	ND (0.1)	NA	ND (0.1)	0.05 J (0.1)
Fluorene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	0.01 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND (0.1)	NA	0.09 J (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)
Phenanthrene	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	0.02 J (0.05)	0.04 J (0.05)	ND (0.05)	0.04 J (0.05)	0.02 J (0.05)	NA	ND (0.05)	ND (0.05)
Metals													
Lead	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H2
Summary of Soil QAQC Analytical Results
Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
AOI	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02
Field Sample ID	FB-070622-3	FB-070622-4	FB-070622-5	FB-070622-6	TB-070622	FB-070722-1	FB-070722-2	FB-070722-3	FB-070722-4	FB-070722-5	FB-070722-6	TB-070722	FB-071322-1	
Matrix	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	
Sample Date	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/6/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/7/2022	7/13/2022	
Comment	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Field Blank	
Volatile Organic Compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Semi-Volatile Organic Compounds														
Anthracene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	
Benzo(a)anthracene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	
Benzo(a)pyrene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	
Benzo(b)fluoranthene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	
Benzo(g,h,i)perylene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	
Chrysene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	
Fluorene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	0.05 J (0.1)	
Phenanthrene	0.03 J (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND (0.05)	0.03 J (0.05)	0.04 J (0.05)	NA	ND (0.05)	
Metals														
Lead	ND (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1)	

Notes:

- 1 All concentrations reported in mg/kg (ppm)
- 2 Only compounds with at least one detection

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration

Table H2

Summary of Soil QAQC Analytical Results

Tank Group 05

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
AOI	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02	Tank Group 02
Field Sample ID	FB-071322-2	TB-071322	FB-072522-1	FB-072522-2	TB-072522	FB-072622	TB-072622
Matrix	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water	Blank Water
Sample Date	7/13/2022	7/13/2022	7/25/2022	7/25/2022	7/25/2022	7/26/2022	7/26/2022
Comment	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Trip Blank
Volatile Organic Compounds	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds							
Anthracene	ND (0.1)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ND (0.05)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ND (0.1)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ND (0.05)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ND (0.1)	NA	NA	NA	NA	NA	NA
Chrysene	ND (0.1)	NA	NA	NA	NA	NA	NA
Fluorene	ND (0.1)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA
Phenanthrene	0.03 J (0.05)	NA	NA	NA	NA	NA	NA
Metals							
Lead	ND (1)	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm)

2 Only compounds with at least one detection

Abbreviations:

ND - Not Detected

NA - Not Analyzed

J - Estimated Concentration

Table H3

Summary of Groundwater Analytical Results

Tank Group 5 Area

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location		S-233	S-233	TG05-MW-01	TG05-MW-01
Field Sample ID	Non-Res GW	S233-GW-221012	S233-GW-221116	TG05MW01-GW-221012	TG05MW01-GW-221116
Sample Method	Used Aquifer	Low Flow	Low Flow	Low Flow	Low Flow
Sample Date	(TDS ≤ 2500)	10/12/2022	11/16/2022	10/12/2022	11/16/2022
Comments					
Volatile Organic Compounds					
Benzene	5	<u>9700 (50)</u>	<u>8000 (25)</u>	<u>690 (20)</u>	<u>660 (25)</u>
Cumene	3500	ND (50)	15 J (25)	60 (20)	46 (25)
1,2-Dibromoethane	0.05	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
1,2-Dichloroethane	5	ND (50)	ND (25)	ND (20)	ND (25)
Ethyl Benzene	700	<u>1400 (50)</u>	<u>1000 (25)</u>	<u>1300 (20)</u>	<u>1100 (25)</u>
Methyl tert-butyl ether	20	ND (100)	ND (50)	<u>660 (40)</u>	<u>740 (50)</u>
Toluene	1000	460 (75)	600 (38)	<u>7000 (30)</u>	<u>6100 (38)</u>
1,2,4-Trimethylbenzene	530	<u>1500 (250)</u>	<u>1300 (120)</u>	<u>580 (100)</u>	490 (120)
1,3,5-Trimethylbenzene	530	440 (250)	410 (120)	170 (100)	140 (120)
Xylenes (total)	10000	<u>11000 (100)</u>	9100 (50)	6500 (40)	5600 (50)
Semivolatile Organic Compounds					
Anthracene	66	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(a)anthracene	3.9	0.03 J (0.05)	0.04 J (0.05)	0.02 J (0.05)	0.04 J (0.05)
Benzo(a)pyrene	0.2	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(b)fluoranthene	1.2	0.01 J (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Benzo(g,h,i)perylene	0.26	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Chrysene	1.9	0.02 J (0.1)	0.03 J (0.1)	ND (0.1)	0.02 J (0.1)
Fluorene	1900	6.4 (0.1)	9.5 (0.1)	5.8 (0.1)	9.7 (0.1)
Naphthalene	100	<u>160 (0.5)</u>	<u>120 (0.5)</u>	<u>210 (0.5)</u>	<u>180 (0.5)</u>
Phenanthrene	1100	11 (0.05)	17 (0.05)	8 (0.05)	15 (0.05)
Pyrene	130	0.34 (0.1)	0.84 (0.1)	0.16 (0.1)	0.57 (0.1)
Metals					
Lead	5	ND (1)	0.3836 J (1)	ND (1)	0.3616 J (1)

Notes:

- All concentrations reported in ug/L (ppb); detection limits in parentheses.
- Underlined concentrations exceed the Non-Res GW Used Aquifer (TDS ≤ 2500).

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration

Table H4
Summary of LNAPL Analytical Results
Tank Group 5

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	S-235	S-240	TG05-MW-01
	S235-NAPL-221012	S240-NAPL-221012	TG05MW01-NAPL-221012
Field Sample ID	Bailer	Bailer	Bailer
Sample Method	10/12/2022	10/12/2022	10/12/2022
Sample Date			
Comments			
Volatile Organic Compounds			
Benzene	3340 (96.9)	339 (99)	218 (98.3)
2,3-Benzothiophene	257 (96.9)	ND (99)	ND (98.3)
Butylbenzene	1110 (96.9)	305 (99)	392 (98.3)
sec-Butylbenzene	324 (96.9)	163 (99)	300 (98.3)
tert-Butylbenzene	30.5 J (96.9)	20.8 J (99)	12.8 J (98.3)
Cumene	547 (96.9)	115 (99)	214 (98.3)
Cyclohexane	5260 (96.9)	1280 (99)	1480 (98.3)
Cyclopentane	1280 (96.9)	201 (99)	318 (98.3)
p-Cymene	258 (96.9)	187 (99)	239 (98.3)
m-Diethyl benzene	1540 (96.9)	485 (99)	422 (98.3)
1,2-Diethylbenzene	306 (96.9)	125 (99)	143 (98.3)
1,3-Dimethyl-2-ethylbenzene	300 (96.9)	187 (99)	181 (98.3)
1,4-Dimethyl-2-ethylbenzene	2880 (96.9)	1000 (99)	843 (98.3)
1,2-Dimethyl-4-ethylbenzene	4810 (96.9)	1430 (99)	1090 (98.3)
1,3-Dimethyl-4-ethylbenzene	2730 (96.9)	993 (99)	889 (98.3)
2,2-Dimethylbutane	702 (96.9)	139 (99)	133 (98.3)
2,3-Dimethyl-butane	2880 (96.9)	429 (99)	400 (98.3)
cis-1,2-Dimethylcyclohexane	2030 (96.9)	359 (99)	340 (98.3)
trans-1,2-Dimethylcyclohexane	1340 (96.9)	985 (99)	798 (98.3)
trans-1,4-Dimethylcyclohexane	2400 (96.9)	641 (99)	664 (98.3)
1,1-Dimethylcyclopentane	ND (96.9)	ND (99)	271 (98.3)
2,3-Dimethylheptane	1940 (96.9)	578 (99)	547 (98.3)
2,5-Dimethylheptane	3150 (96.9)	590 (99)	459 (98.3)
3,3-Dimethylheptane	277 (96.9)	73 J (99)	49.1 J (98.3)
3,4-Dimethylheptane	1360 (96.9)	329 (99)	237 (98.3)
3,5-Dimethylheptane	716 (96.9)	144 (99)	110 (98.3)
2,2-Dimethylhexane	ND (96.9)	ND (99)	71.2 J (98.3)
2,3-Dimethylhexane	1640 (96.9)	307 (99)	212 (98.3)
2,4-Dimethylhexane	2400 (96.9)	400 (99)	293 (98.3)
2,5-Dimethylhexane	2160 (96.9)	308 (99)	228 (98.3)
3,3-Dimethyloctane	207 (96.9)	103 (99)	87.5 J (98.3)
2,2-Dimethylpentane	742 (96.9)	115 (99)	87.4 J (98.3)
2,3-Dimethylpentane	5340 (96.9)	668 (99)	478 (98.3)
2,4-Dimethylpentane	2130 (96.9)	273 (99)	229 (98.3)
3,3-Dimethylpentane	715 (96.9)	106 (99)	63.1 J (98.3)
Ethyl Benzene	8480 (96.9)	766 (99)	1040 (98.3)
1-Ethyl-3-methyl-benzene	11600 (1940)	2230 (99)	1870 (98.3)
Ethylcyclopentane	2290 (96.9)	392 (99)	368 (98.3)
3-Ethylhexane	2280 (96.9)	274 (99)	172 (98.3)
5-Ethyl-m-xylene	4740 (96.9)	1660 (99)	1270 (98.3)
3-Ethyl-o-xylene	986 (96.9)	459 (99)	417 (98.3)
3-Ethylpentane	1270 (96.9)	183 (99)	116 (98.3)
4-Ethyltoluene	6700 (96.9)	1190 (99)	920 (98.3)
Heptane	14000 (1940)	2160 (99)	2250 (98.3)
1-Heptene/trans-1,2-DMCP	6660 (194)	1610 (198)	1320 (197)
Hexane	10500 (1940)	1470 (99)	2220 (98.3)
1-Hexene	125 (96.9)	22.8 J (99)	33.9 J (98.3)
cis-2-Hexene	162 (96.9)	30 J (99)	23.6 J (98.3)
trans-2-Hexene	89.8 J (96.9)	41.9 J (99)	35.3 J (98.3)
Hexylbenzene	307 (96.9)	342 (99)	349 (98.3)
Indane	2770 (96.9)	745 (99)	574 (98.3)
Indene	246 (96.9)	88 J (99)	62.7 J (98.3)
Isobutylbenzene	308 (96.9)	88.8 J (99)	107 (98.3)
Isodecane	2030 (96.9)	881 (99)	825 (98.3)
Isooctane	1420 (96.9)	346 (99)	220 (98.3)
Isopentane	6630 (96.9)	2160 (99)	2400 (98.3)
Isopropylcyclohexane	530 (96.9)	ND (99)	ND (98.3)
Isopropylcyclopentane	356 (96.9)	ND (99)	62.7 J (98.3)
2-Methyl-1-butene	745 (96.9)	236 (99)	320 (98.3)
4-Methyl-1-pentene	122 (96.9)	25.9 J (99)	38.5 J (98.3)
1-Methyl-2-ethylbenzene	3910 (96.9)	1010 (99)	803 (98.3)
1-Methyl-2-isopropylbenzene	57.6 J (96.9)	49.8 J (99)	47.5 J (98.3)
1-Methyl-2-n-propylbenzene	1240 (96.9)	534 (99)	580 (98.3)
2-Methyl-2-pentene	3150 (96.9)	240 (99)	277 (98.3)
1-Methyl-3-isopropylbenzene	544 (96.9)	326 (99)	350 (98.3)
1-Methyl-3-n-propylbenzene	3550 (96.9)	1080 (99)	1010 (98.3)
1-Methyl-4-n-Propylbenzene	1860 (96.9)	518 (99)	517 (98.3)
Methylcyclohexane	11900 (1940)	4380 (99)	4150 (98.3)
Methylcyclopentane	10000 (1940)	1960 (99)	2120 (98.3)
2-Methylheptane	9300 (96.9)	1540 (99)	1410 (98.3)
3-Methylheptane	7320 (96.9)	1140 (99)	970 (98.3)
4-Methylheptane	3990 (96.9)	529 (99)	410 (98.3)
2-Methylhexane	10300 (1940)	1290 (99)	1240 (98.3)
3-methylhexane	11600 (1940)	1590 (99)	1300 (98.3)
3-Methylnonane	2040 (96.9)	864 (99)	758 (98.3)
2-Methyloctane	4670 (96.9)	924 (99)	777 (98.3)
3-Methyloctane	4560 (96.9)	1020 (99)	857 (98.3)
4-Methyloctane	2960 (96.9)	652 (99)	520 (98.3)
3-methylpentane	7840 (1940)	1400 (99)	1380 (98.3)
2-Methyl-Pentane	9870 (1940)	1660 (99)	2020 (98.3)
Octane	8930 (1940)	2110 (99)	1630 (98.3)
Pentane	6000 (96.9)	1300 (99)	2020 (98.3)
1-Pentene	ND (96.9)	ND (99)	21.8 J (98.3)
cis-2-Pentene	92.4 J (96.9)	72 J (99)	62.9 J (98.3)
trans-2-Pentene	210 (96.9)	114 (99)	85.8 J (98.3)
Pentylbenzene	325 (96.9)	164 (99)	202 (98.3)
Propylbenzene	3040 (96.9)	356 (99)	558 (98.3)
1,2,3,5-Tetramethylbenzene	4020 (96.9)	1750 (99)	1350 (98.3)
1,2,3,4-Tetramethylbenzene	1100 (96.9)	937 (99)	736 (98.3)
1,2,4,5-Tetramethylbenzene	2840 (96.9)	1130 (99)	808 (98.3)
Toluene	333 (96.9)	129 (99)	221 (98.3)
1,2,4-Triethylbenzene	ND (96.9)	136 (99)	ND (98.3)
1,2,3-Trimethylbenzene	5400 (96.9)	1740 (99)	1340 (98.3)
1,2,4-Trimethylbenzene	23000 (1940)	5620 (99)	4120 (98.3)
1,3,5-Trimethylbenzene	9360 (96.9)	2010 (99)	1360 (98.3)
2,2,3-Trimethylbutane	228 (96.9)	37.6 J (99)	29.4 J (98.3)
2,2,3-Trimethylpentane	176 (96.9)	50.1 J (99)	32.7 J (98.3)
2,3,3-Trimethylpentane	1220 (96.9)	299 (99)	173 (98.3)
2,3,4-Trimethylpentane	1080 (96.9)	283 (99)	170 (98.3)
m,p-xylene	38200 (3880)	5650 (198)	4040 (197)
ortho-xylene	1890 (96.9)	1280 (99)	182 (98.3)
Xylenes (total)	38200 (96.9)	6930 (99)	4220 (98.3)

Table H4
Summary of LNAPL Analytical Results
Tank Group 5

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	S-235	S-240	TG05-MW-01
	S235-NAPL-221012	S240-NAPL-221012	TG05MW01-NAPL-221012
Field Sample ID	Bailer	Bailer	Bailer
Sample Method	10/12/2022	10/12/2022	10/12/2022
Sample Date			
Comments			
Semivolatile Organic Compounds			
Acenaphthene	165 (5.89)	614 (11.3)	737 (10.5)
Acenaphthylene	15.3 (5.89)	35.8 (11.3)	42.6 (10.5)
Anthracene	67.4 (5.89)	302 (11.3)	349 (10.5)
C1-Anthracenes/Phenanthrenes	1220 (5.89)	4670 (11.3)	5460 (10.5)
C2-Anthracenes/Phenanthrenes	986 (5.89)	4140 (11.3)	4200 (10.5)
C3-Anthracenes/Phenanthrenes	318 (5.89)	1610 (11.3)	1250 (10.5)
C4-Anthracenes/Phenanthrenes	83 (5.89)	441 (11.3)	288 (10.5)
Benzo(a)anthracene	1.11 J (2.94)	3.87 (2.82)	1.82 J (2.63)
Benzo(b)fluoranthene	ND (2.94)	0.781 J (2.82)	ND (2.63)
Benzo(b)fluorene	3.91 J (5.89)	17.7 (11.3)	13 (10.5)
Benzo(e)pyrene	0.806 J (2.94)	0.857 J (2.82)	ND (2.63)
Benzo(g,h,i)perylene	0.866 J (2.94)	ND (2.82)	ND (2.63)
Benzo(j+k)fluoranthene	ND (2.94)	0.675 J (2.82)	ND (2.63)
1,1-Biphenyl	242 (5.89)	318 (11.3)	708 (10.5)
Carbazole	11 (5.89)	64.4 (11.3)	169 (10.5)
Chrysene/Triphenylene	3.02 (2.94)	8 (2.82)	6.67 (2.63)
C1-Chrysenes	3.55 (2.94)	11.3 (2.82)	7.56 (2.63)
C2-Chrysenes	3.46 (2.94)	8.38 (2.82)	5.93 (2.63)
C3-Chrysenes	ND (2.94)	11.3 (2.82)	9.35 (2.63)
Dibenzofuran	102 (5.89)	297 (11.3)	389 (10.5)
Dibenzothiophene	134 (5.89)	312 (11.3)	443 (10.5)
C1-Dibenzothiophenes	397 (5.89)	881 (11.3)	1280 (10.5)
C3-Dibenzothiophenes	212 (5.89)	396 (11.3)	552 (10.5)
C2-Dibenzothiophenes	416 (5.89)	844 (11.3)	1260 (10.5)
C4-Dibenzothiophenes	65.9 (5.89)	126 (11.3)	147 (10.5)
2,6-Dimethylnaphthalene	3130 (5.89)	10400 (11.3)	12300 (10.5)
Fluoranthene	11.4 (5.89)	53.1 (11.3)	40.6 (10.5)
C1-Fluoranthenes/Pyrenes	42.6 (5.89)	272 (11.3)	156 (10.5)
C2-Fluoranthenes/Pyrenes	22.8 (5.89)	143 (11.3)	74.5 (10.5)
C3-Fluoranthenes/Pyrenes	11.2 (5.89)	54.5 (11.3)	33.3 (10.5)
C4-Fluoranthenes/Pyrenes	5.13 J (5.89)	18.6 (11.3)	15.7 (10.5)
Fluorene	228 (5.89)	751 (11.3)	966 (10.5)
C1-Fluorenes	563 (5.89)	1830 (11.3)	2350 (10.5)
C2-Fluorenes	917 (5.89)	3010 (11.3)	3740 (10.5)
C3-Fluorenes	659 (5.89)	2290 (11.3)	2680 (10.5)
Tetraethyl Lead	0.681 J (0.942)	ND (0.998)	ND (0.956)
1-Methylnaphthalene	2750 (5.89)	6110 (11.3)	6540 (10.5)
2-Methylnaphthalene	5440 (5.89)	9980 (11.3)	10400 (10.5)
Naphthalene	3350 (5.89)	1770 (11.3)	2000 (10.5)
C1-Naphthalenes	4920 (5.89)	9660 (11.3)	10200 (10.5)
C2-Naphthalenes	5820 (5.89)	19100 (11.3)	23000 (10.5)
C3-Naphthalenes	4220 (5.89)	14300 (11.3)	17000 (10.5)
C4-Naphthalenes	2090 (5.89)	7060 (11.3)	8340 (10.5)
Phenanthrene	570 (5.89)	2020 (11.3)	2500 (10.5)
Pyrene	41.6 (5.89)	205 (11.3)	153 (10.5)
14A(H),17A(H)-20S-Cholestane/13B(H),17A(H)-20S-Ethylcholestanolane (S12)	ND (2.94)	0.7 J (2.82)	1.34 J (2.63)
14B(H),17B(H)-20R-Cholestane (S14)	ND (2.94)	0.7 J (2.82)	1.04 J (2.63)
14B(H),17B(H)-20S-Cholestane (S15)	ND (2.94)	ND (2.82)	1.11 J (2.63)
14A(H),17A(H)-20R-Cholestane/13B(H),17A(H)-20R-Ethylcholestanolane (S17)	ND (2.94)	1.06 J (2.82)	1.99 J (2.63)
14A,17A-20S-Methylcholestanolane (S20)	ND (2.94)	ND (2.82)	0.659 J (2.63)
14B,17B-20R-Methylcholestanolane (S22)	ND (2.94)	ND (2.82)	0.933 J (2.63)
14B,17B-20S-Methylcholestanolane (S23)	ND (2.94)	ND (2.82)	1.14 J (2.63)
14A,17A-20R-Methylcholestanolane (S24)	ND (2.94)	ND (2.82)	0.728 J (2.63)
14B(H),17B(H)-20R-Ethylcholestanolane (S26)	ND (2.94)	ND (2.82)	0.907 J (2.63)
14A(H),17A(H)-20R-Ethylcholestanolane (S28)	ND (2.94)	ND (2.82)	0.659 J (2.63)
13B(H),17A(H)-20S-Diacholestanolane (S4)	ND (2.94)	1.22 J (2.82)	1.07 J (2.63)
13B(H),17A(H)-20R-Diacholestanolane (S5)	ND (2.94)	ND (2.82)	0.651 J (2.63)
18A-22,29,30-Trisnorhopane-TS (T11)	ND (2.94)	1.16 J (2.82)	1.41 J (2.63)
17A(H)-22,29,30-Trisnorhopane-TM (T12)	ND (2.94)	ND (2.82)	0.988 J (2.63)
30-Norhopane (T15)	1.28 J (2.94)	1.68 J (2.82)	2.82 (2.63)
18A(H)&18B(H)-Oleananes (T18)	ND (2.94)	1.39 J (2.82)	2.46 J (2.63)
Hopane (T19)	1.14 J (2.94)	1.85 J (2.82)	2.99 (2.63)
C23 Tricyclic Terpane (T4)	4.32 (2.94)	13.3 (2.82)	10.9 (2.63)
C24 Tricyclic Terpane (T5)	2.39 J (2.94)	6.58 (2.82)	4.88 (2.63)
C25 Tricyclic Terpane (T6)	1.16 J (2.94)	2.47 J (2.82)	2.03 J (2.63)
C24 Tetracyclic Terpane (T6A)	ND (2.94)	1.47 J (2.82)	1.71 J (2.63)
C26 Tricyclic Terpane-22S (T6B)	ND (2.94)	1.38 J (2.82)	ND (2.63)
C26 Tricyclic Terpane-22R (T6C)	ND (2.94)	1.32 J (2.82)	0.889 J (2.63)
C26,20R+C27,20S-triaromatic steroid (TAS1)	0.763 J (2.94)	1.22 J (2.82)	2.66 (2.63)
C28,20S-triaromatic steroid (TAS2)	ND (2.94)	0.737 J (2.82)	1.61 J (2.63)
C27,20R-triaromatic steroid (TAS3)	ND (2.94)	0.764 J (2.82)	1.76 J (2.63)
C28,20R-triaromatic steroid (TAS4)	ND (2.94)	ND (2.82)	1.31 J (2.63)
2,3,5-Trimethylnaphthalene	628 (5.89)	2140 (11.3)	2140 (10.5)
Saturated Hydrocarbons			
Decane	3440 (196)	3920 (188)	1110 (175)
Docosane	76 J (196)	830 (188)	ND (175)
Dodecane	4180 (196)	7430 (188)	3160 (175)
Eicosane	ND (196)	1860 (188)	ND (175)
Heneicosane	180 J (196)	1540 (188)	404 (175)
Heptacosane	ND (196)	43.3 J (188)	ND (175)
Heptadecane	ND (196)	4400 (188)	ND (175)
Hexacosane	ND (196)	67 J (188)	ND (175)
Hexadecane	ND (196)	3840 (188)	ND (175)
Nonadecane	ND (196)	2620 (188)	ND (175)
Nonane	6410 (196)	2530 (188)	1270 (175)
Octacosane	89.7 J (196)	95.2 J (188)	ND (175)
Octadecane	ND (196)	3300 (188)	ND (175)
Pentacosane	ND (196)	108 J (188)	ND (175)
Pentadecane	616 (196)	6460 (188)	ND (175)
Phytane	1920 (196)	3220 (188)	5250 (175)
Pristane	4390 (196)	7710 (188)	13100 (175)
Tetracosane	ND (196)	215 (188)	ND (175)
Tetradecane	2500 (196)	11200 (188)	8320 (175)
Tricosane	50.6 J (196)	508 (188)	ND (175)
Tridecane	8680 (196)	18100 (188)	16400 (175)
2,6,10-Trimethyldodecane (1380)	2670 (196)	3710 (188)	6190 (175)
2,6,10-Trimethylpentadecane (1650)	2450 (196)	4190 (188)	6440 (175)
2,6,10-Trimethyltridecane (1470)	4210 (196)	7110 (188)	10400 (175)
Undecane	2900 (196)	4980 (188)	1380 (175)
Total Saturated Hydrocarbons	44800 J (196)	100000 J (188)	73400 (175)
Extractable Petroleum Hydrocarbons			
Petroleum Hydrocarbons C9 - C44	677000 (6480)	919000 (6210)	1050000 (5780)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration

Table H5

Summary of Groundwater QAQC Analytical Results

Tank Group 5 Area

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	QAQC
Field Sample ID	TB-221116
Sample Method	Grab
Sample Date	11/16/2022
Comments	Trip Blank
Volatile Organic Compounds	ND

Notes:

- 1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

ND - Not Detected

Table H6

Quality Control Methodology

Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Multiple VOC Runs Data Quality	Solution
If the surrogate recoveries for one run are within acceptance criteria and the other run has 3-4 surrogates outside of acceptance criteria :	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If the surrogate recoveries for one run are within acceptance criteria and has some detections and the other run has 1-2 surrogates outside of acceptance criteria :	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If one run has surrogate recoveries within acceptance criteria but is non-detect and the other run has 1-2 surrogates outside of acceptance criteria but has detections :	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have detections and surrogate recoveries outside of acceptance criteria :	The run with more surrogates recoveries outside acceptance criteria is not reported and the run with fewer surrogate recoveries outside of acceptance criteria is selected as reportable.
If one run has surrogate recoveries outside of acceptance criteria but is non-detect and the other run has 1-2 more surrogates outside of acceptance criteria but has detections :	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have the same number of surrogates with recovery outside the acceptance criteria:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable .
If two VOC runs are reported and there are no QC issues for both runs:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable .

Table H8
RPD Calculations
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Area	Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	Benzene	71-43-2	T	18%	1.2		U	6.80E-04		U	5.70E-04		U	6.25E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	Cumene	98-82-8	T	24%	1.3		U	1.40E-03		U	1.10E-03		U	1.25E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	Ethyl Benzene	100-41-4	T	24%	1.3		U	1.40E-03		U	1.10E-03		U	1.25E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	16%	1.2		U	2.70E-03		U	2.30E-03		U	2.50E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	Toluene	108-88-3	T	24%	1.3		U	1.40E-03		U	1.10E-03		U	1.25E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	16%	1.2		U	2.70E-03		U	2.30E-03		U	2.50E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	16%	1.2		U	2.70E-03		U	2.30E-03		U	2.50E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-253-17	PB-253-17-SS01	12/8/2021	SVOC	Naphthalene	91-20-3	T	18%	1.2		U	5.50E-03		U	4.60E-03		U	5.05E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Benzene	71-43-2	T	9%	1.1		U	4.80E-04		U	4.40E-04		U	4.60E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Cumene	98-82-8	T	9%	1.1		U	9.60E-04		U	8.80E-04		U	9.20E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	1,2-Dibromoethane	106-93-4	T	9%	1.1		U	4.80E-04		U	4.40E-04		U	4.60E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	1,2-Dichloroethane	107-06-2	T	9%	1.1		U	9.60E-04		U	8.80E-04		U	9.20E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Ethyl Benzene	100-41-4	T	9%	1.1		U	9.60E-04		U	8.80E-04		U	9.20E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	5%	1.1		U	1.90E-03		U	1.80E-03		U	1.85E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Toluene	108-88-3	T	9%	1.1		U	9.60E-04		U	8.80E-04		U	9.20E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	5%	1.1		U	1.90E-03		U	1.80E-03		U	1.85E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	5%	1.1		U	1.90E-03		U	1.80E-03		U	1.85E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	VOC	Xylenes (total)	1330-20-7	T	5%	1.1		U	1.90E-03		U	1.80E-03		U	1.85E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Anthracene	120-12-7	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Benzo(a)anthracene	56-55-3	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Benzo(a)pyrene	50-32-8	T	0%	1.0		U	1.60E-01		U	1.60E-01		U	1.60E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	0%	1.0		U	1.60E-01		U	1.60E-01		U	1.60E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Chrysene	218-01-9	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Fluorene	86-73-7	T	5%	1.1		U	2.00E-01		U	1.90E-01		U	1.95E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Naphthalene	91-20-3	T	5%	1.1		U	2.00E-01		U	1.90E-01		U	1.95E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Phenanthrene	85-01-8	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	SVOC	Pyrene	129-00-0	T	0%	1.0		U	1.20E-01		U	1.20E-01		U	1.20E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-08	PB-822-08-SS01	7/5/2022	INORG	Lead	7439-92-1	T	153%	7.6	7.43E+01		U	2.32E+00	9.81E+00	2.31E+00	4.21E+01		U	2.32E+00	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Benzene	71-43-2	T	95%	2.8		U	5.90E-04	2.10E-04	J	5.40E-04		J	5.40E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Cumene	98-82-8	T	21%	1.2		U	1.20E-03		U	9.70E-04		U	1.09E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	1,2-Dibromoethane	106-93-4	T	19%	1.2		U	5.90E-04		U	4.90E-04		U	5.40E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	1,2-Dichloroethane	107-06-2	T	21%	1.2		U	1.20E-03		U	9.70E-04		U	1.09E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Ethyl Benzene	100-41-4	T	21%	1.2		U	1.20E-03		U	9.70E-04		U	1.09E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	23%	1.3		U	2.40E-03		U	1.90E-03		U	2.15E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Toluene	108-88-3	T	21%	1.2		U	1.20E-03		U	9.70E-04		U	1.09E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	23%	1.3		U	2.40E-03		U	1.90E-03		U	2.15E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	23%	1.3		U	2.40E-03		U	1.90E-03		U	2.15E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	VOC	Xylenes (total)	1330-20-7	T	23%	1.3		U	2.40E-03		U	1.90E-03		U	2.15E-03	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Anthracene	120-12-7	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Benzo(a)anthracene	56-55-3	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Benzo(a)pyrene	50-32-8	T	6%	1.1		U	1.60E-01		U	1.50E-01		U	1.55E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	6%	1.1		U	1.60E-01		U	1.50E-01		U	1.55E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Chrysene	218-01-9	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Fluorene	86-73-7	T	5%	1.1		U	2.00E-01		U	1.90E-01		U	1.95E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Naphthalene	91-20-3	T	5%	1.1		U	2.00E-01		U	1.90E-01		U	1.95E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Phenanthrene	85-01-8	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	SVOC	Pyrene	129-00-0	T	9%	1.1		U	1.20E-01		U	1.10E-01		U	1.15E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-822-09	PB-822-09-SS01	7/5/2022	INORG	Lead	7439-92-1	T	29%	1.3	8.80E+00		U	2.29E+00	1.18E+01	4.44E+00	1.03E+01		U	3.37E+00	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	VOC	Benzene	71-43-2	T	18%	1.2		U	5.10E-04		U	6.10E-04		U	5.60E-04	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Anthracene	120-12-7	T	0%	1.0		U	1.10E-01		U	1.10E-01		U	1.10E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Benzo(a)anthracene	56-55-3	T	0%	1.0		U	1.10E-01		U	1.10E-01		U	1.10E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Benzo(a)pyrene	50-32-8	T	0%	1.0		U	1.50E-01		U	1.50E-01		U	1.50E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	0%	1.0		U	1.10E-01		U	1.10E-01		U	1.10E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	143%	6.0		U	1.50E-01	2.50E-02	J	1.50E-01	5.00E-02	J	1.50E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Chrysene	218-01-9	T	128%	4.6		U	1.10E-01	2.40E-02	J	1.10E-01	3.95E-02	J	1.10E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Fluorene	86-73-7	T	5%	1.1		U	1.80E-01		U	1.90E-01		U	1.85E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Naphthalene	91-20-3	T	5%	1.1		U	1.80E-01		U	1.90E-01		U	1.85E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Phenanthrene	85-01-8	T	75%	2.2		U	1.10E-01	5.00E-02	J	1.10E-01	5.25E-02	J	1.10E-01	mg/kg	
Subsurface Soil	AST	Tank Group 05	PB-823-11	PB-823-11-SS01	7/7/2022	SVOC	Pyrene	129-00-0	T	88%	2.6		U	1.10E-01	4.30E-02							

Table H8
RPD Calculations
Tank Group 05
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Matrix	Dataset	Area	Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	VOC	Toluene	108-88-3	T	18%	1.2		U	1.00E-03		U	1.20E-03		U	1.10E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	13%	1.1		U	2.10E-03		U	2.40E-03		U	2.25E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	13%	1.1		U	2.10E-03		U	2.40E-03		U	2.25E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Anthracene	120-12-7	T	9%	1.1		U	1.10E-01		U	1.20E-01		U	1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Benzo(a)anthracene	56-55-3	T	24%	1.3	1.40E-01		1.10E-01	1.10E-01	J	1.20E-01	1.25E-01	J	1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Benzo(a)pyrene	50-32-8	T	42%	1.5	2.00E-01		1.50E-01	1.30E-01	J	1.60E-01	1.65E-01	J	1.55E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	40%	1.5	2.10E-01		1.10E-01	1.40E-01		1.20E-01	1.75E-01		1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	18%	1.2	9.00E-02	J	1.50E-01	7.50E-02		1.60E-01	8.25E-02	J	1.55E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Chrysene	218-01-9	T	17%	1.2	1.30E-01		1.10E-01	1.10E-01	J	1.20E-01	1.20E-01	J	1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Fluorene	86-73-7	T	160%	9.0		U	1.90E-01	2.10E-02	J	2.00E-01	5.80E-02	J	1.95E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Naphthalene	91-20-3	T	5%	1.1		U	1.90E-01		U	2.00E-01		U	1.95E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Phenanthrene	85-01-8	T	63%	1.9	6.80E-02	J	1.10E-01	1.30E-01		1.20E-01	9.90E-02	J	1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-835-09	PB-835-09-SS01	7/6/2022	SVOC	Pyrene	129-00-0	T	6%	1.1	1.50E-01		1.10E-01	1.60E-01		1.20E-01	1.55E-01		1.15E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	Benzene	71-43-2	T	18%	1.2		U	6.00E-04		U	7.20E-04		U	6.60E-04	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	Cumene	98-82-8	T	199%	464.3	6.50E-01		6.10E-02		U	1.40E-03	3.25E-01	J	3.12E-02	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	Ethyl Benzene	100-41-4	T	184%	24.3	3.40E-02	J	6.10E-02		U	1.40E-03	1.74E-02	J	3.12E-02	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	19%	1.2		U	2.40E-03		U	2.90E-03		U	2.65E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	Toluene	108-88-3	T	15%	1.2		U	1.20E-03		U	1.40E-03		U	1.30E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	175%	15.2	4.40E-02	J	1.20E-01		U	2.90E-03	2.27E-02	J	6.15E-02	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	19%	1.2		U	2.40E-03		U	2.90E-03		U	2.65E-03	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Anthracene	120-12-7	T	169%	12.0	1.20E+00		1.20E-01		U	1.00E-01	6.25E-01	J	1.10E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Benzo(a)anthracene	56-55-3	T	183%	22.0	2.20E+00		1.20E-01		U	1.00E-01	1.13E+00	J	1.10E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Benzo(a)pyrene	50-32-8	T	183%	22.9	3.20E+00		1.50E-01		U	1.40E-01	1.64E+00	J	1.45E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	187%	29.0	2.90E+00		1.20E-01		U	1.00E-01	1.48E+00	J	1.10E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	178%	17.1	2.40E+00		1.50E-01		U	1.40E-01	1.24E+00	J	1.45E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Chrysene	218-01-9	T	183%	22.0	2.20E+00		1.20E-01		U	1.00E-01	1.13E+00	J	1.10E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Fluorene	86-73-7	T	123%	4.2	7.60E-01		1.90E-01		U	1.80E-01	4.25E-01	J	1.85E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Naphthalene	91-20-3	T	29%	1.3	2.40E-01		1.90E-01		U	1.80E-01	1.65E-01	J	1.85E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Phenanthrene	85-01-8	T	193%	56.0	5.60E+00		1.20E-01		U	1.00E-01	2.83E+00	J	1.10E-01	mg/kg
Subsurface Soil	AST	Tank Group 05	PB-836-04	PB-836-04-SS01	7/5/2022	SVOC	Pyrene	129-00-0	T	195%	74.0	7.40E+00		1.20E-01		U	1.00E-01	3.73E+00	J	1.10E-01	mg/kg

Appendix I

Laboratory Reports





ANALYTICAL REPORT

Lab Number:	L2167219
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	12/22/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167219-01	PB-885-22-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:10	12/07/21
L2167219-02	PB-885-23-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:30	12/07/21
L2167219-03	PB-885-26-SS01	SOIL	PHILADELPHIA, PA	12/07/21 09:45	12/07/21
L2167219-04	PB-885-21-SS01	SOIL	PHILADELPHIA, PA	12/07/21 10:10	12/07/21
L2167219-05	PB-885-06-SS01	SOIL	PHILADELPHIA, PA	12/07/21 10:40	12/07/21
L2167219-06	PB-253-01-SS01	SOIL	PHILADELPHIA, PA	12/07/21 12:30	12/07/21
L2167219-07	PB-253-02-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:00	12/07/21
L2167219-08	PB-253-03-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:10	12/07/21
L2167219-09	PB-253-04-SS01	SOIL	PHILADELPHIA, PA	12/07/21 13:40	12/07/21
L2167219-10	PB-253-05-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:00	12/07/21
L2167219-11	PB-253-06-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:10	12/07/21
L2167219-12	PB-253-07-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:20	12/07/21
L2167219-13	PB-253-08-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:30	12/07/21
L2167219-14	PB-253-09-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:40	12/07/21
L2167219-15	PB-253-10-SS01	SOIL	PHILADELPHIA, PA	12/07/21 14:50	12/07/21
L2167219-16	DUP-23	SOIL	PHILADELPHIA, PA	12/07/21 00:00	12/07/21
L2167219-17	FB-211207	WATER	PHILADELPHIA, PA	12/07/21 15:00	12/07/21
L2167219-18	TB-211207	WATER	PHILADELPHIA, PA	12/07/21 00:00	12/07/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2167219-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2167219-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (310%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2167219-15 and -16: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2167219-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (158%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Case Narrative (continued)

L2167219-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (139%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2167219-16D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2167219-16D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Semivolatile Organics by SIM

The WG1582162-1 Method Blank, associated with L2167219-17, has concentrations above the reporting limits for Naphthalene and Phenanthrene. Since the associated sample concentrations are either greater than 10x the blank concentrations or non-detect to the RL for these target analytes, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 12/22/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 07:49
 Analyst: MV
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 13:56
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03
 Client ID: PB-885-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:45
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 14:22
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 14:48
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05
 Client ID: PB-885-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 16:05
 Analyst: AJK
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-06
 Client ID: PB-253-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 12:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 13:07
 Analyst: MV
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00083	J	mg/kg	0.0023	0.00023	1
Benzene	0.84	E	mg/kg	0.00056	0.00019	1
Toluene	0.11		mg/kg	0.0011	0.00061	1
Ethylbenzene	1.1	E	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.086		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.93	E	mg/kg	0.0023	0.00038	1
Naphthalene	0.071		mg/kg	0.0045	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-06 D
 Client ID: PB-253-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 12:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:25
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	3.5		mg/kg	0.065	0.022	2
Toluene	0.70		mg/kg	0.13	0.071	2
Ethylbenzene	9.4		mg/kg	0.13	0.018	2
Isopropylbenzene	1.0		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	1.9		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	14.		mg/kg	0.26	0.043	2
Naphthalene	0.75		mg/kg	0.52	0.084	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 17:54
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.53		mg/kg	0.038	0.012	1
Toluene	0.53		mg/kg	0.075	0.041	1
Ethylbenzene	6.4		mg/kg	0.075	0.010	1
Isopropylbenzene	2.3		mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	12.		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	31.	E	mg/kg	0.15	0.025	1
Naphthalene	29.	E	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07 D
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:48
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	34.		mg/kg	1.5	0.25	10
Naphthalene	48.		mg/kg	3.0	0.49	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-08
 Client ID: PB-253-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 19:55
 Analyst: MKS
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00052	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.00034	J	mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	114		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-09
 Client ID: PB-253-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 20:17
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
Toluene	ND		mg/kg	0.00085	0.00046	1
Ethylbenzene	ND		mg/kg	0.00085	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00085	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1
Naphthalene	ND		mg/kg	0.0034	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-10
 Client ID: PB-253-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/21/21 15:10
 Analyst: KJD
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	0.0084		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.043		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.015		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.19		mg/kg	0.0023	0.00038	1
Naphthalene	0.019		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	310	Q	70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-11
 Client ID: PB-253-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 20:40
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	ND		mg/kg	0.0045	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-12
 Client ID: PB-253-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:20
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/18/21 21:03
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00047	J	mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	0.0020		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0014		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0023	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0015	J	mg/kg	0.0026	0.00043	1
Naphthalene	0.038		mg/kg	0.0051	0.00084	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-13
 Client ID: PB-253-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 18:17
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	ND		mg/kg	0.034	0.011	1
Toluene	ND		mg/kg	0.067	0.036	1
Ethylbenzene	0.12		mg/kg	0.067	0.0095	1
Isopropylbenzene	0.38		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.9		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	4.4		mg/kg	0.13	0.022	1
Naphthalene	1.9		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-14
 Client ID: PB-253-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 12:43
 Analyst: MV
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00075	1
Ethylbenzene	0.0014		mg/kg	0.0014	0.00019	1
Isopropylbenzene	0.015		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0052		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	0.010		mg/kg	0.0028	0.00046	1
Naphthalene	0.014		mg/kg	0.0055	0.00090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-15
 Client ID: PB-253-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:50
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 18:40
 Analyst: MV
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
Toluene	ND		mg/kg	0.065	0.035	1
Ethylbenzene	0.033	J	mg/kg	0.065	0.0092	1
Isopropylbenzene	2.4		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.13	0.022	1
Naphthalene	0.91		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	158	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 19:02
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	ND		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	ND		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.016	J	mg/kg	0.067	0.0095	1
p/m-Xylene	ND		mg/kg	0.13	0.038	1
o-Xylene	0.036	J	mg/kg	0.067	0.020	1
Xylenes, Total	0.036	J	mg/kg	0.067	0.020	1
Isopropylbenzene	2.0		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.054	J	mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/19/21 14:11
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/17/21 09:57
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-18
 Client ID: TB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/19/21 14:20
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-18
 Client ID: TB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 11:57
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/17/21 09:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17 Batch: WG1584911-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/17/21 06:57
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04 Batch: WG1585060-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/19/21 11:13
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 12/19/21 09:20

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17-18 Batch: WG1585167-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-07 Batch: WG1585263-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-09,11-12 Batch: WG1585264-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 09:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,13,15-16 Batch: WG1585981-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/19/21 11:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1586009-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/20/21 09:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,14 Batch: WG1586011-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/21/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1586225-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/22/21 08:29
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 18 Batch: WG1586758-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	112		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17 Batch: WG1584911-3 WG1584911-4								
Methyl tert butyl ether	93		98		63-130	5		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	99		100		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		99		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04 Batch: WG1585060-3 WG1585060-4								
Methyl tert butyl ether	78		93		66-130	18		30
Benzene	101		93		70-130	8		30
1,2-Dichloroethane	85		83		70-130	2		30
Toluene	103		94		70-130	9		30
1,2-Dibromoethane	89		86		70-130	3		30
Ethylbenzene	108		97		70-130	11		30
p/m-Xylene	110		99		70-130	11		30
o-Xylene	108		99		70-130	9		30
Isopropylbenzene	106		95		70-130	11		30
1,3,5-Trimethylbenzene	106		95		70-130	11		30
1,2,4-Trimethylbenzene	105		96		70-130	9		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	106		103		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	95		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17-18 Batch: WG1585167-2									
1,2-Dibromoethane	106		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-07 Batch: WG1585263-3 WG1585263-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-09,11-12 Batch: WG1585264-3 WG1585264-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,13,15-16 Batch: WG1585981-3 WG1585981-4								
Methyl tert butyl ether	96		102		66-130	6		30
Benzene	86		92		70-130	7		30
1,2-Dichloroethane	95		104		70-130	9		30
Toluene	84		88		70-130	5		30
1,2-Dibromoethane	96		99		70-130	3		30
Ethylbenzene	87		92		70-130	6		30
p/m-Xylene	89		95		70-130	7		30
o-Xylene	91		99		70-130	8		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	86		86		70-130	0		30
1,2,4-Trimethylbenzene	86		86		70-130	0		30
Naphthalene	82		84		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		110		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	103		98		70-130
Dibromofluoromethane	104		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1586009-3 WG1586009-4								
Methyl tert butyl ether	103		103		66-130	0		30
Benzene	106		104		70-130	2		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	105		103		70-130	2		30
1,2-Dibromoethane	99		100		70-130	1		30
Ethylbenzene	108		106		70-130	2		30
p/m-Xylene	116		113		70-130	3		30
o-Xylene	114		112		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	113		110		70-130	3		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,14 Batch: WG1586011-3 WG1586011-4								
Methyl tert butyl ether	106		106		66-130	0		30
Benzene	110		108		70-130	2		30
Toluene	108		108		70-130	0		30
Ethylbenzene	111		111		70-130	0		30
Isopropylbenzene	114		111		70-130	3		30
1,3,5-Trimethylbenzene	115		113		70-130	2		30
1,2,4-Trimethylbenzene	116		114		70-130	2		30
Naphthalene	101		106		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		99		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	102		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1586225-3 WG1586225-4								
Methyl tert butyl ether	105		106		66-130	1		30
Benzene	106		105		70-130	1		30
Toluene	104		105		70-130	1		30
Ethylbenzene	107		108		70-130	1		30
Isopropylbenzene	110		110		70-130	0		30
1,3,5-Trimethylbenzene	110		112		70-130	2		30
1,2,4-Trimethylbenzene	111		112		70-130	1		30
Naphthalene	108		111		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	100		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 18 Batch: WG1586758-3 WG1586758-4								
Methyl tert butyl ether	90		100		63-130	11		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		110		70-130	10		20
Ethylbenzene	100		110		70-130	10		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		105		70-130	5		20
Isopropylbenzene	100		110		70-130	10		20
1,3,5-Trimethylbenzene	94		98		64-130	4		20
1,2,4-Trimethylbenzene	95		99		70-130	4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		111		70-130
Toluene-d8	105		105		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 02:17
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	41		23-120
2-Fluorobiphenyl	37		30-120
4-Terphenyl-d14	37		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 02:41
 Analyst: JG
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03
 Client ID: PB-885-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:45
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:05
 Analyst: JG
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:29
 Analyst: JG
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05
 Client ID: PB-885-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 03:54
 Analyst: JG
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16 D
 Client ID: DUP-23
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 00:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 21:49
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 08:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	4.0	0.49	20
Fluorene	14.		mg/kg	4.0	0.39	20
Phenanthrene	29.		mg/kg	2.4	0.49	20
Anthracene	3.7		mg/kg	2.4	0.78	20
Pyrene	2.9		mg/kg	2.4	0.40	20
Benzo(a)anthracene	ND		mg/kg	2.4	0.45	20
Chrysene	ND		mg/kg	2.4	0.42	20
Benzo(b)fluoranthene	ND		mg/kg	2.4	0.68	20
Benzo(a)pyrene	ND		mg/kg	3.2	0.98	20
Benzo(ghi)perylene	ND		mg/kg	3.2	0.47	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	0	Q	23-120
2-Fluorobiphenyl	0	Q	30-120
4-Terphenyl-d14	0	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17
 Client ID: FB-211207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 15:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/14/21 13:31
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/12/21 07:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	67		15-120
4-Terphenyl-d14	68		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/14/21 17:24
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 12/11/21 21:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 17 Batch: WG1582162-1					
Naphthalene	0.12		ug/l	0.10	0.05
Fluorene	0.01	J	ug/l	0.10	0.01
Phenanthrene	0.10		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	72		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 12/19/21 23:25
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 12/18/21 08:16

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05,16 Batch: WG1584941-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	69		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 17 Batch: WG1582162-2 WG1582162-3								
Naphthalene	78		87		40-140	11		40
Fluorene	93		95		40-140	2		40
Phenanthrene	91		92		40-140	1		40
Anthracene	96		97		40-140	1		40
Pyrene	105		104		26-127	1		40
Benzo(a)anthracene	99		97		40-140	2		40
Chrysene	92		92		40-140	0		40
Benzo(b)fluoranthene	109		109		40-140	0		40
Benzo(a)pyrene	105		103		40-140	2		40
Benzo(ghi)perylene	90		88		40-140	2		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	68		77		23-120
2-Fluorobiphenyl	88		97		15-120
4-Terphenyl-d14	114		112		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05,16 Batch: WG1584941-2 WG1584941-3								
Naphthalene	60		75		40-140	22		50
Fluorene	62		74		40-140	18		50
Phenanthrene	60		71		40-140	17		50
Anthracene	59		73		40-140	21		50
Pyrene	61		73		35-142	18		50
Benzo(a)anthracene	64		76		40-140	17		50
Chrysene	64		76		40-140	17		50
Benzo(b)fluoranthene	67		79		40-140	16		50
Benzo(a)pyrene	63		71		40-140	12		50
Benzo(ghi)perylene	68		83		40-140	20		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	61		74		23-120
2-Fluorobiphenyl	63		76		30-120
4-Terphenyl-d14	63		75		18-120

METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-01
 Client ID: PB-885-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.76		mg/kg	4.73	0.254	2	12/17/21 19:37	12/22/21 13:59	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02

Date Collected: 12/07/21 09:30

Client ID: PB-885-23-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.80		mg/kg	2.08	0.111	1	12/17/21 19:37	12/21/21 22:55	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-03

Date Collected: 12/07/21 09:45

Client ID: PB-885-26-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.28		mg/kg	2.05	0.110	1	12/17/21 19:37	12/21/21 23:00	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04

Date Collected: 12/07/21 10:10

Client ID: PB-885-21-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.11		mg/kg	2.06	0.110	1	12/17/21 19:37	12/21/21 23:05	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-05

Date Collected: 12/07/21 10:40

Client ID: PB-885-06-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.41		mg/kg	2.07	0.111	1	12/17/21 19:37	12/21/21 23:10	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-16

Date Collected: 12/07/21 00:00

Client ID: DUP-23

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.69		mg/kg	2.29	0.123	1	12/17/21 19:37	12/21/21 23:34	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-17

Date Collected: 12/07/21 15:00

Client ID: FB-211207

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:28	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17 Batch: WG1582832-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/14/21 05:12	12/16/21 23:54	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05,16 Batch: WG1584723-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/17/21 19:37	12/21/21 20:33	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17 Batch: WG1582832-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 Batch: WG1584723-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17 QC Batch ID: WG1582832-3 WG1582832-4 QC Sample: L2167147-05 Client ID: MS Sample												
Lead, Total	1.973	530	492.8	93		482.8	91		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 QC Batch ID: WG1584723-3 QC Sample: L2167070-01 Client ID: MS Sample												
Lead, Total	10.2	48	49.6	82		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05,16 QC Batch ID: WG1584723-4 QC Sample: L2167070-01 Client ID: DUP Sample						
Lead, Total	10.2	10.3	mg/kg	1		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-01

Date Collected: 12/07/21 09:10

Client ID: PB-885-22-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-02
 Client ID: PB-885-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 09:30
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-03

Date Collected: 12/07/21 09:45

Client ID: PB-885-26-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-04
 Client ID: PB-885-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 10:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.8		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-05

Date Collected: 12/07/21 10:40

Client ID: PB-885-06-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-06

Date Collected: 12/07/21 12:30

Client ID: PB-253-01-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-07
 Client ID: PB-253-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-08
 Client ID: PB-253-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 13:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-09

Date Collected: 12/07/21 13:40

Client ID: PB-253-04-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-10
 Client ID: PB-253-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:00
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-11
 Client ID: PB-253-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:10
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-12

Date Collected: 12/07/21 14:20

Client ID: PB-253-07-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.9		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-13

Date Collected: 12/07/21 14:30

Client ID: PB-253-08-SS01

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-14
 Client ID: PB-253-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:40
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

SAMPLE RESULTS

Lab ID: L2167219-15
 Client ID: PB-253-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/21 14:50
 Date Received: 12/07/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**SAMPLE RESULTS**

Lab ID: L2167219-16

Date Collected: 12/07/21 00:00

Client ID: DUP-23

Date Received: 12/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	12/08/21 11:31	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167219

Report Date: 12/22/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16 QC Batch ID: WG1580638-1 QC Sample: L2167219-01 Client ID: PB-885-22-SS01						
Solids, Total	80.0	79.4	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-01B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-01C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-01F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-02B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-02C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-02F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-03B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-03C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-03D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-03F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-04B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-04C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-04D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Serial_No:12222117:04
Lab Number: L2167219
Report Date: 12/22/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-04F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2167219-05B	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-05C	Vial water preserved	A	NA		2.3	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-05D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2167219-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2167219-05F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2167219-06A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2167219-06B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260H(14),PA-8260HLW(14)
L2167219-06C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260H(14),PA-8260HLW(14)
L2167219-06D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-07A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-07B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-07C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-07D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-08A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-08B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-08C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-08D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-09A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-09B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-09C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-09D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-10A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-10B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-10C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-10D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-11A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-11B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-11C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-11D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-12A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-12B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-12C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-12D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-13A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-13B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-13C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-13D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-14A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-14B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-14C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-14D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-15A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-15B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-15C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-15D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-16A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167219-16B	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-16C	Vial water preserved	B	NA		2.1	Y	Absent	08-DEC-21 11:08	PA-8260HLW(14)
L2167219-16D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167219-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167219-16F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167219-17A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-17B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167219**Project Number:** 200.00135.005.03**Report Date:** 12/22/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167219-17C	Vial HCl preserved	A	NA		2.3	Y	Absent		8011(14)
L2167219-17D	Plastic 500ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		PB-6020T-PPB(180)
L2167219-17E	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2167219-17F	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2167219-17G	Plastic 60ml unpreserved	A	NA		2.3	Y	Absent		ARCHIVE()
L2167219-18A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-18B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2167219-18C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)
L2167219-18D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167219
Report Date: 12/22/21

Data Qualifiers

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167219

Project Number: 200.00135.005.03

Report Date: 12/22/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.


EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2



Westborough, MA
TEL: 508-858-9220
FAX: 508-858-4100

Mansfield, MA
TEL: 508-822-5300
FAX: 508-822-3299

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
 Email results to edit@terraphase.com, William.Schmidt@ransomenv.com, and jjaray@hincoglobal.com

Date Rec'd in Lab: 12/8/21

ALPHA Job #: L2167219

Report Information

FAX EMAIL

ADEX Add'l Deliverables

Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										SAMPLE HANDLING	TOTAL # SHORTLIST		
		Date	Time			PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol			VOC portion of PADEP Shortlist	Sample Specific Comments
67219-01	PB-885-22-SS01	12/7	0910	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-02	PB-885-23-SS01		0930	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-03	PB-885-26-SS01		0945	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-04	PB-885-21-SS01		1010	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-05	PB-885-06-SS01		1040	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-06	PB-253-01-SS01		1230	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-07	PB-253-02-SS01		1300	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-08	PB-253-03-SS01		1310	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-09	PB-253-04-SS01		1340	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
-10	PB-253-05-SS01		1400	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-


Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/7 11:50	<i>[Signature]</i>	12/7 16:25
<i>[Signature]</i>	12/7 17:50	<i>[Signature]</i>	12/7 17:50
<i>[Signature]</i>	12/7 17:50	<i>[Signature]</i>	12/7 17:50
<i>[Signature]</i>	12/8 09:20	<i>[Signature]</i>	12/8 20:50
<i>[Signature]</i>	12/8 09:20	<i>[Signature]</i>	12/8 09:00
<i>[Signature]</i>	12/8 09:20	<i>[Signature]</i>	12/8 09:00

FORM C-1-10-04 Rev. 1-24-05

Please print clearly, legibly and completely. Samples cannot be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 of 2



Westborough, MA
TEL: 508-498-8220
FAX: 508-498-6193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3228

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 12/8/21

ALPHA Job #: L216.7219

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: [] Standard [] Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

[] These samples have been previously analyzed by Alpha

Report Information: Data Deliverables

FAX EMAIL

ADEX Add'l Deliverables

Billing Information

Same as Client Info PO #: 3694

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hbcoglobal.com

Regulatory Requirements/Report Limits

State/Fed Program: [] Criteria: []

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SAMPLE HANDLING

Dorn
 Not Needed
 Lab to do
 Lab to do
 (Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
67219-11	PB-253-06-5501	12/7	1410	S	TS
-12	PB-253-07-5501		1420	S	TS
-13	PB-253-08-5501		1430	S	TS
-14	PB-253-09-5501		1440	S	TS
-15	PB-253-10-5501		1450	S	TS
-16	DUP-23		-	S	TS
-17	PB-211207		1500	W	TS
-18	PB-211207		-	W	TS

Container Type	G	O	D	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/7/21 17:36	<i>[Signature]</i>	12/7/21 16:25
<i>[Signature]</i>	12/7/21 17:50	<i>[Signature]</i>	12/7/21 17:50
<i>[Signature]</i>	12/7/21	<i>[Signature]</i>	12/7/21 20:30
<i>[Signature]</i>	12/8/21	<i>[Signature]</i>	12/8/21 01:50
<i>[Signature]</i>	12/8/21	<i>[Signature]</i>	12/8/21 noon

PADEP Short List Analytical List:

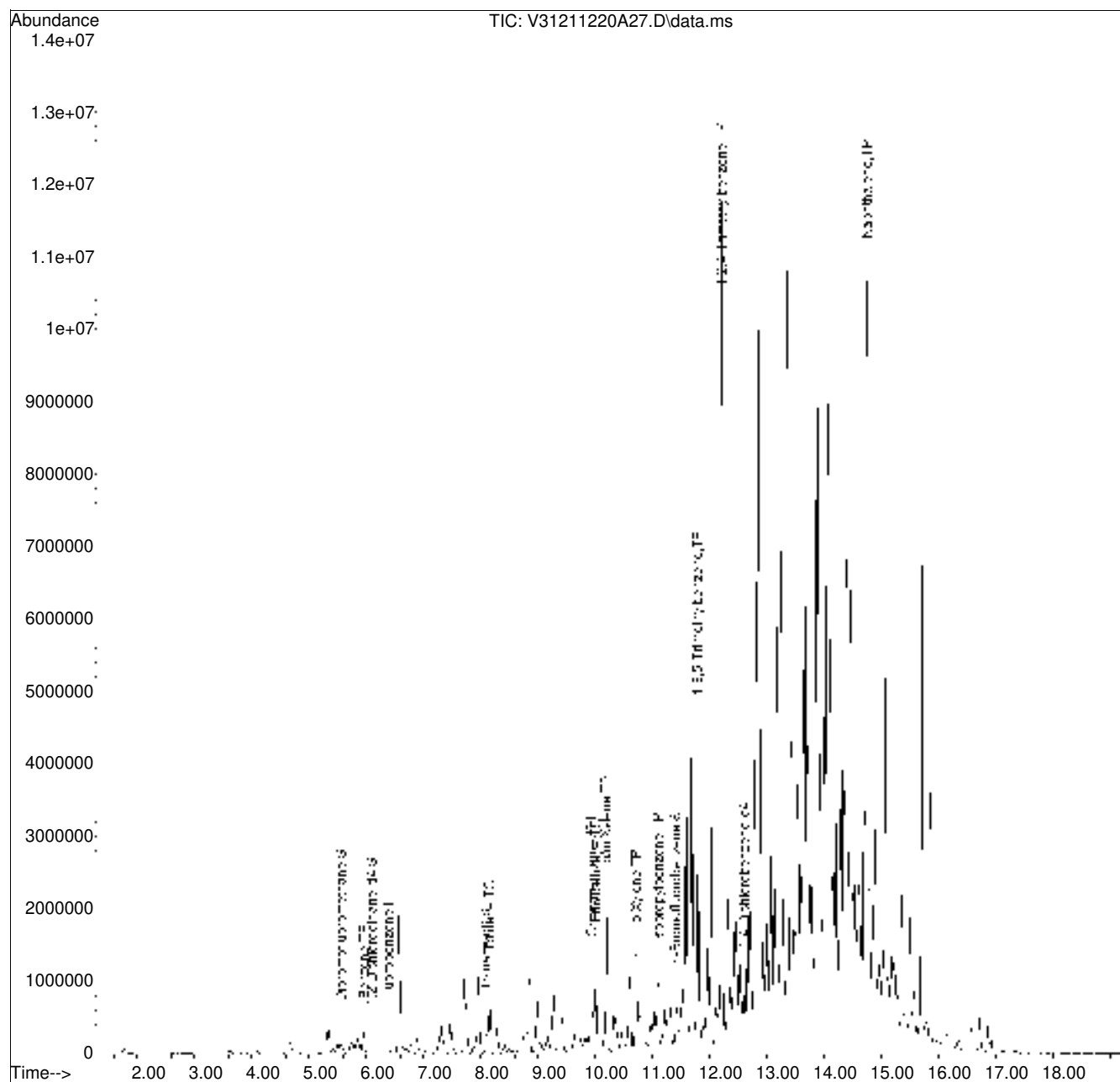
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
6. Waste Oil - benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
 Data File : V31211220A27.D
 Acq On : 20 Dec 2021 05:54 pm
 Operator : VOA131:MV
 Sample : 12167219-07,31H,4.64,5,0.100,,a
 Misc : WG1585981,ICAL18518
 ALS Vial : 27 Sample Multiplier: 1

Quant Time: Dec 21 05:07:47 2021
 Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri Dec 03 10:30:02 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

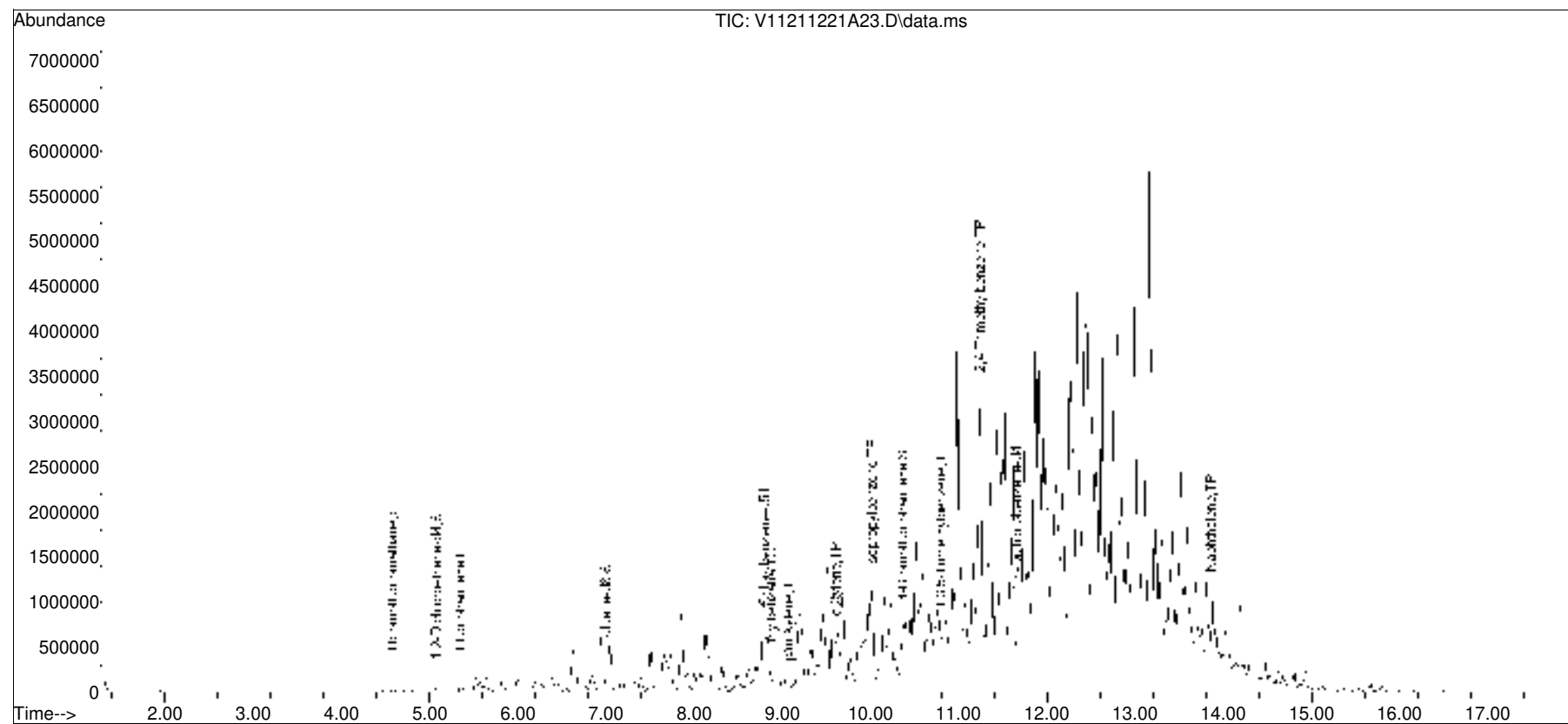


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\211221A\
Data File : V11211221A23.D
Acq On : 21 Dec 2021 03:10 pm
Operator : VOA111:KJD
Sample : L2167219-10,31,5.51,5,,B
Misc : WG1586225,ICAL18566
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 21 15:37:17 2021
Quant Method : I:\VOLATILES\VOA111\2021\211221A\V111_211214A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 12:27:59 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V11211221A01.D•

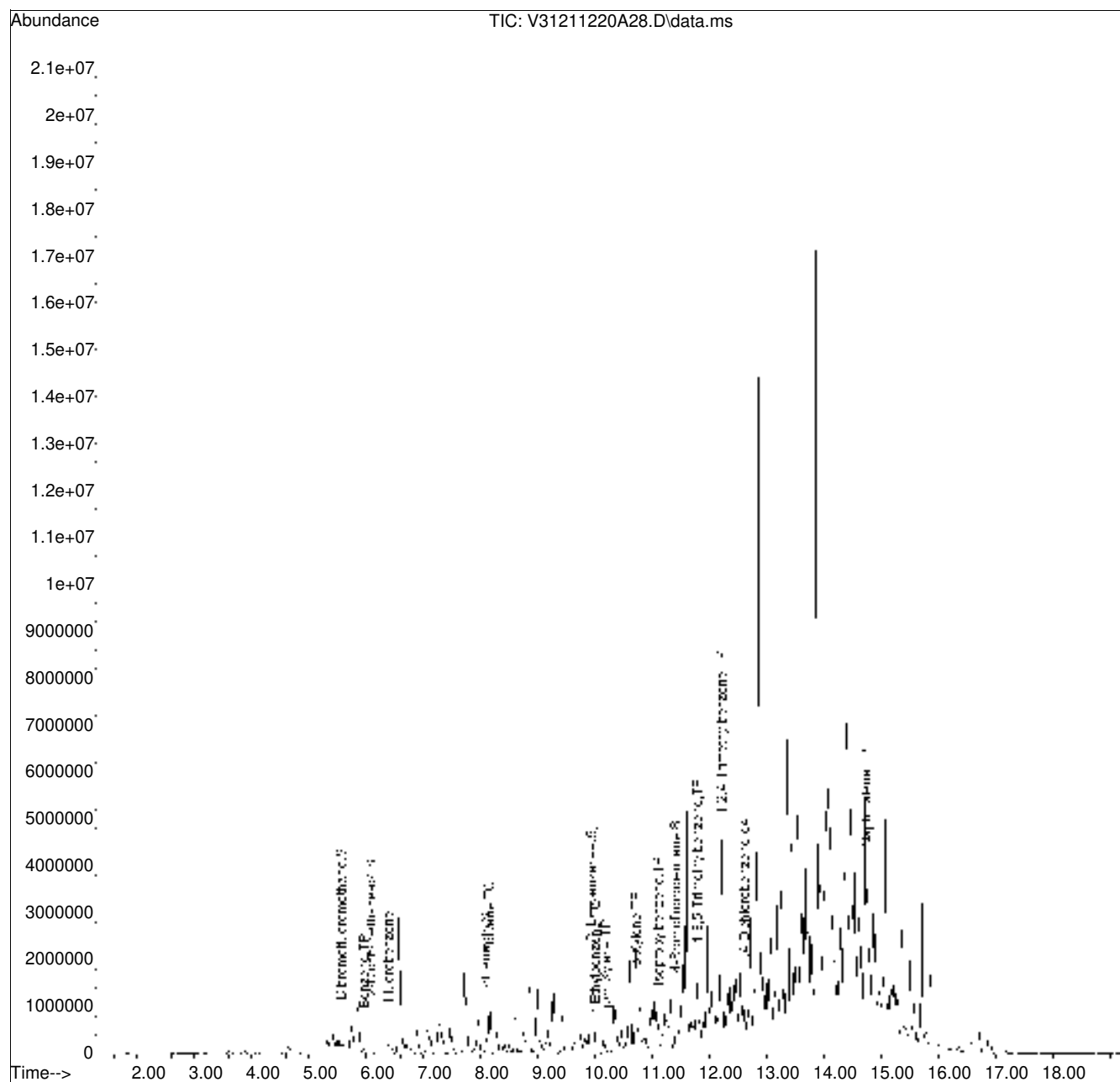


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
Data File : V31211220A28.D
Acq On : 20 Dec 2021 06:17 pm
Operator : VOA131:MV
Sample : 12167219-13,31H,5.33,5,0.100,,a
Misc : WG1585981,ICAL18518
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Dec 21 05:07:51 2021
Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Dec 03 10:30:02 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

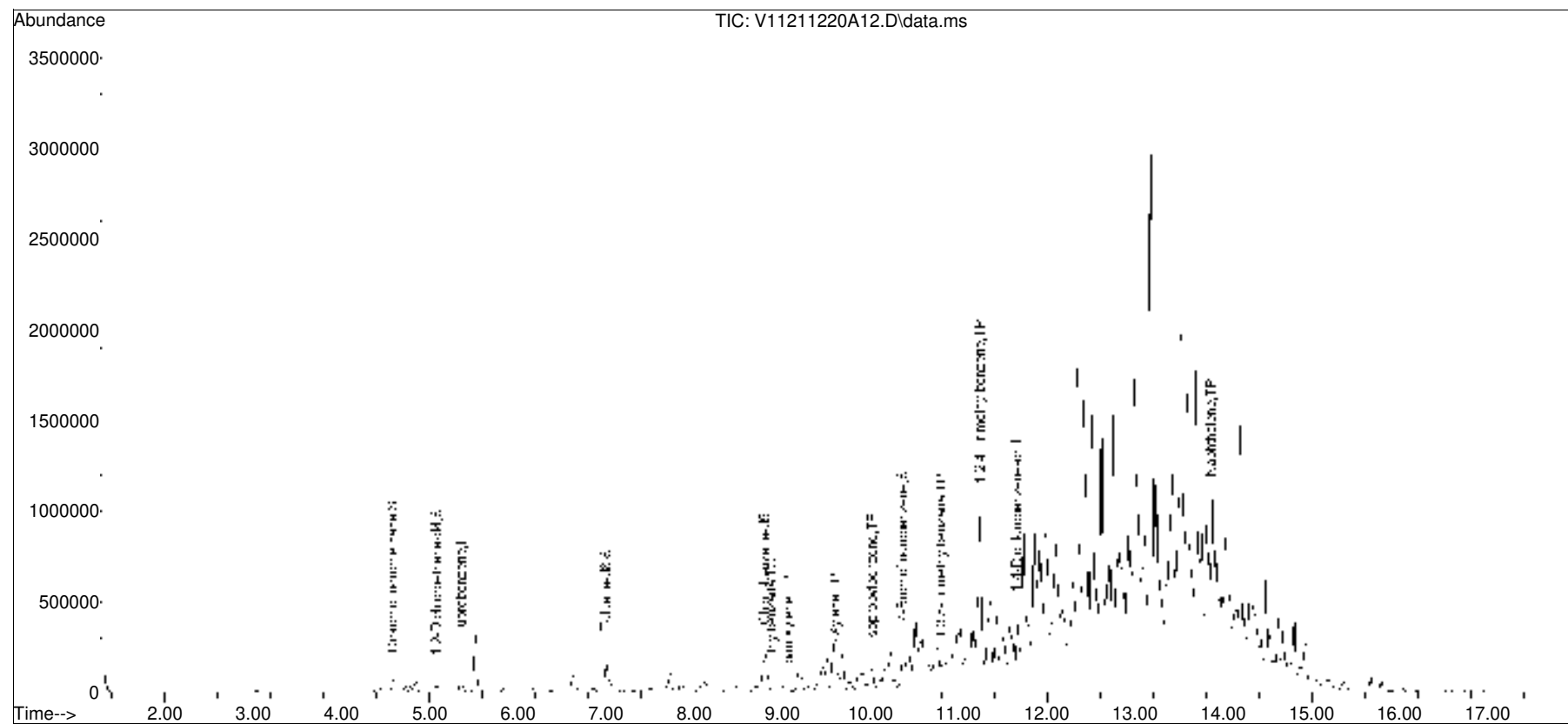


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\211220A\
Data File : V11211220A12.D
Acq On : 20 Dec 2021 12:43 pm
Operator : VOA111:MV
Sample : L2167219-14,31,4.21,5,,B
Misc : WG1586011,ICAL18566
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 21 08:40:26 2021
Quant Method : I:\VOLATILES\VOA111\2021\211220A\V111_211214A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 12:27:59 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V11211220A01.D•

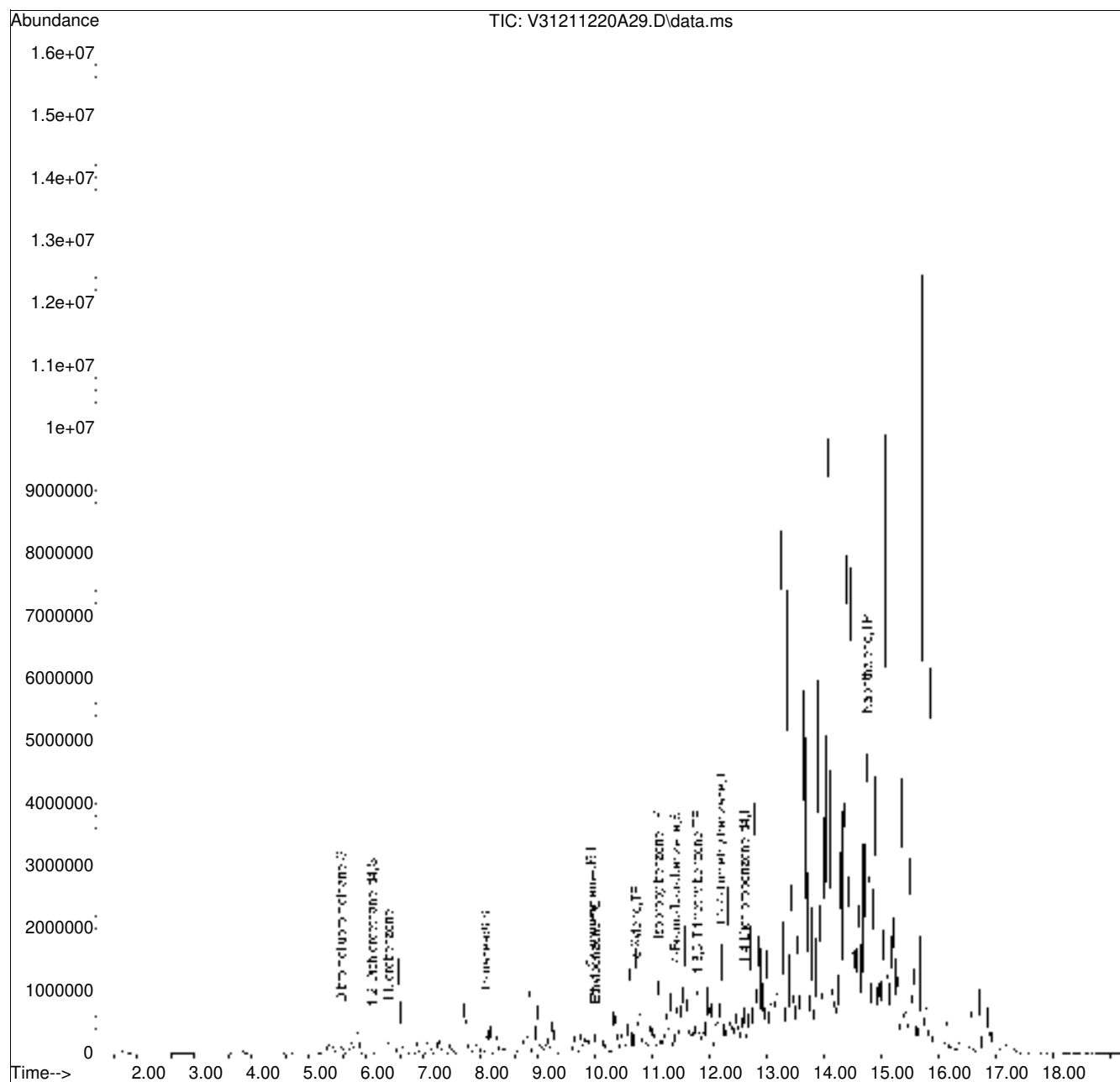


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
Data File : V31211220A29.D
Acq On : 20 Dec 2021 06:40 pm
Operator : VOA131:MV
Sample : 12167219-15,31H,5.71,5,0.100,,a
Misc : WG1585981,ICAL18518
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 21 06:01:53 2021
Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Dec 03 10:30:02 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•

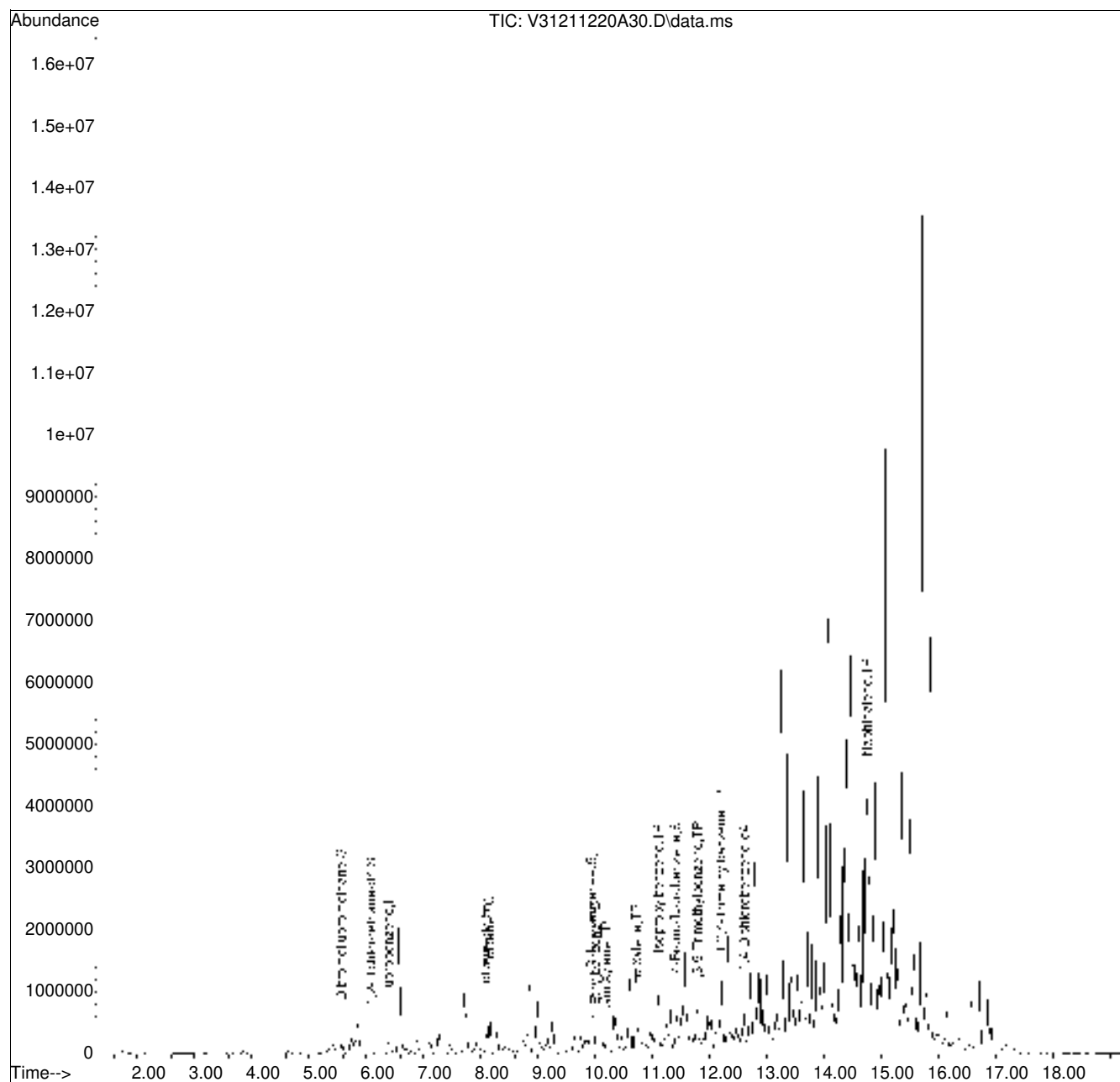


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2021\211220A\
 Data File : V31211220A30.D
 Acq On : 20 Dec 2021 07:02 pm
 Operator : VOA131:MV
 Sample : 12167219-16,31H,5.32,5,0.100,,a
 Misc : WG1585981,ICAL18518
 ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 21 06:02:25 2021
 Quant Method : I:\VOLATILES\VOA131\2021\211220A\V31_211202A_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri Dec 03 10:30:02 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V31211220A01.D•





ANALYTICAL REPORT

Lab Number:	L2167531
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	12/27/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167531-01	PB-253-11-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:10	12/08/21
L2167531-02	PB-253-12-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:20	12/08/21
L2167531-03	PB-253-13-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:35	12/08/21
L2167531-04	PB-253-14-SS01	SOIL	PHILADELPHIA, PA	12/08/21 09:50	12/08/21
L2167531-05	PB-253-15-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:00	12/08/21
L2167531-06	PB-253-16-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:15	12/08/21
L2167531-07	PB-253-17-SS01	SOIL	PHILADELPHIA, PA	12/08/21 10:30	12/08/21
L2167531-08	PB-883-08-SS01	SOIL	PHILADELPHIA, PA	12/08/21 11:35	12/08/21
L2167531-09	PB-883-09-SS01	SOIL	PHILADELPHIA, PA	12/08/21 11:55	12/08/21
L2167531-10	PB-883-10-SS01	SOIL	PHILADELPHIA, PA	12/08/21 12:15	12/08/21
L2167531-11	PB-883-11-SS01	SOIL	PHILADELPHIA, PA	12/08/21 12:45	12/08/21
L2167531-12	PB-883-12-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:00	12/08/21
L2167531-13	PB-883-13-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:10	12/08/21
L2167531-14	PB-883-14-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:20	12/08/21
L2167531-15	PB-883-16-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:25	12/08/21
L2167531-16	PB-883-17-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:40	12/08/21
L2167531-17	PB-883-18-SS01	SOIL	PHILADELPHIA, PA	12/08/21 13:50	12/08/21
L2167531-18	PB-883-19-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:00	12/08/21
L2167531-19	PB-883-22-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:05	12/08/21
L2167531-20	PB-883-23-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:15	12/08/21
L2167531-21	PB-883-24-SS01	SOIL	PHILADELPHIA, PA	12/08/21 14:30	12/08/21
L2167531-22	FB-211208-1	WATER	PHILADELPHIA, PA	12/08/21 14:40	12/08/21
L2167531-23	FB-211208-2	WATER	PHILADELPHIA, PA	12/08/21 14:45	12/08/21
L2167531-24	DUP-24	SOIL	PHILADELPHIA, PA	12/08/21 00:00	12/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2167531-25	TB-211208	WATER	PHILADELPHIA, PA	12/08/21 00:00	12/08/21



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2167531-17: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (185%) and 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2167531-15D, -16D and -17D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Semivolatile Organics by SIM

L2167531-23: The Field Blank has a concentration above the reporting limit for Naphthalene and Phenanthrene. The sample was re-extracted with the method required holding time exceeded and was non-detect for this target compound. The results of both extractions are reported.

Total Metals

The WG1585605-3 MS recovery, performed on L2167531-08, is outside the acceptance criteria for lead (63%). A post digestion spike was performed and yielded an unacceptable recovery for lead (62%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 12/27/21

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-01
 Client ID: PB-253-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 02:19
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00089	0.00048	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-02
 Client ID: PB-253-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 00:49
 Analyst: MKS
 Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-03
 Client ID: PB-253-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:11
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1
Naphthalene	ND		mg/kg	0.0058	0.00094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	111		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-04
 Client ID: PB-253-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:34
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-05
 Client ID: PB-253-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 01:57
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	109		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-06
 Client ID: PB-253-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 06:53
 Analyst: AJK
 Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-07
 Client ID: PB-253-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 10:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:14
 Analyst: AJK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00074	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00046	1
Naphthalene	ND		mg/kg	0.0055	0.00089	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-08
 Client ID: PB-883-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:34
 Analyst: AJK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09
 Client ID: PB-883-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:55
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 07:55
 Analyst: AJK
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10
 Client ID: PB-883-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:16
 Analyst: AJK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	ND		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00089	0.00026	1
Xylenes, Total	ND		mg/kg	0.00089	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:36
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12
 Client ID: PB-883-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 08:57
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00034	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13
 Client ID: PB-883-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:18
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14
 Client ID: PB-883-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 13:26
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0025	0.00069	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15
 Client ID: PB-883-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:25
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:38
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.00019	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 22:10
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17
 Client ID: PB-883-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 08:04
 Analyst: MV
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	ND		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
p/m-Xylene	ND		mg/kg	0.13	0.036	1
o-Xylene	0.044	J	mg/kg	0.064	0.019	1
Xylenes, Total	0.044	J	mg/kg	0.064	0.019	1
Isopropylbenzene	0.82		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.040	J	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	185	Q	70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18
 Client ID: PB-883-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/20/21 11:42
 Analyst: MV
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19
 Client ID: PB-883-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:05
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 10:20
 Analyst: AJK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00024	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20
 Client ID: PB-883-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 10:40
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00074	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00044	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00083	1
o-Xylene	ND		mg/kg	0.0015	0.00043	1
Xylenes, Total	ND		mg/kg	0.0015	0.00043	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 11:01
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:24
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:21
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:32
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 09:41
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-24
 Client ID: DUP-24
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 12/19/21 11:22
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	ND		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-25
 Client ID: TB-211208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/20/21 16:41
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-25
 Client ID: TB-211208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 00:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/22/21 12:22
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/18/21 17:40
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-05 Batch: WG1585264-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/20/21 10:40
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18 Batch: WG1585532-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/20/21 14:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/20/21 12:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 22-23,25 Batch: WG1585549-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/19/21 06:32
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06-15,19-21,24 Batch: WG1585594-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 12/19/21 08:42
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22-23 Batch: WG1585679-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 12/20/21 19:34
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1586528-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/22/21 07:39
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17 Batch: WG1586695-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/22/21 08:23
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25 Batch: WG1586738-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-05 Batch: WG1585264-3 WG1585264-4								
Methyl tert butyl ether	97		93		66-130	4		30
Benzene	88		90		70-130	2		30
Toluene	84		86		70-130	2		30
Ethylbenzene	87		89		70-130	2		30
Isopropylbenzene	83		84		70-130	1		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	83		84		70-130	1		30
Naphthalene	82		78		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18 Batch: WG1585532-3 WG1585532-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	98		97		70-130	1		30
1,2-Dichloroethane	88		91		70-130	3		30
Toluene	100		100		70-130	0		30
1,2-Dibromoethane	93		102		70-130	9		30
Ethylbenzene	101		100		70-130	1		30
p/m-Xylene	105		104		70-130	1		30
o-Xylene	105		104		70-130	1		30
Isopropylbenzene	106		101		70-130	5		30
1,3,5-Trimethylbenzene	109		103		70-130	6		30
1,2,4-Trimethylbenzene	107		103		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 22-23,25 Batch: WG1585549-2									
1,2-Dibromoethane	98		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06-15,19-21,24 Batch: WG1585594-3 WG1585594-4								
Methyl tert butyl ether	92		106		66-130	14		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	92		99		70-130	7		30
Toluene	103		105		70-130	2		30
1,2-Dibromoethane	96		109		70-130	13		30
Ethylbenzene	106		107		70-130	1		30
p/m-Xylene	110		110		70-130	0		30
o-Xylene	111		113		70-130	2		30
Isopropylbenzene	115		108		70-130	6		30
1,3,5-Trimethylbenzene	118		109		70-130	8		30
1,2,4-Trimethylbenzene	116		109		70-130	6		30
Naphthalene	98		105		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	88		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22-23 Batch: WG1585679-3 WG1585679-4								
Methyl tert butyl ether	83		89		63-130	7		20
Benzene	96		100		70-130	4		20
1,2-Dichloroethane	88		88		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		110		70-130	10		20
p/m-Xylene	105		110		70-130	5		20
o-Xylene	100		105		70-130	5		20
Isopropylbenzene	99		110		70-130	11		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	96		100		70-130	4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	97		100		70-130
Dibromofluoromethane	95		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1586528-3 WG1586528-4								
Methyl tert butyl ether	93		92		66-130	1		30
Benzene	100		99		70-130	1		30
1,2-Dichloroethane	79		79		70-130	0		30
Toluene	102		101		70-130	1		30
1,2-Dibromoethane	87		88		70-130	1		30
Ethylbenzene	104		103		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	105		102		70-130	3		30
Isopropylbenzene	104		99		70-130	5		30
1,3,5-Trimethylbenzene	101		102		70-130	1		30
1,2,4-Trimethylbenzene	100		101		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	94		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17 Batch: WG1586695-3 WG1586695-4								
Methyl tert butyl ether	94		96		66-130	2		30
Benzene	89		93		70-130	4		30
1,2-Dichloroethane	90		95		70-130	5		30
Toluene	91		95		70-130	4		30
1,2-Dibromoethane	99		104		70-130	5		30
Ethylbenzene	92		96		70-130	4		30
p/m-Xylene	94		99		70-130	5		30
o-Xylene	93		98		70-130	5		30
Isopropylbenzene	94		96		70-130	2		30
1,3,5-Trimethylbenzene	93		97		70-130	4		30
1,2,4-Trimethylbenzene	93		96		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	98		96		70-130
Dibromofluoromethane	98		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25 Batch: WG1586738-3 WG1586738-4								
Methyl tert butyl ether	82		86		63-130	5		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	93		96		70-130	3		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	110		100		64-130	10		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		100		70-130
Toluene-d8	98		95		70-130
4-Bromofluorobenzene	104		100		70-130
Dibromofluoromethane	97		96		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-08
 Client ID: PB-883-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:35
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 00:35
 Analyst: EK
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09
 Client ID: PB-883-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 11:55
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 00:58
 Analyst: EK
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	96		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10
 Client ID: PB-883-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 01:21
 Analyst: EK
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	91		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 01:44
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12
 Client ID: PB-883-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 05:35
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	0.028	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.021	J	mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13
 Client ID: PB-883-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:10
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 05:58
 Analyst: EK
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14
 Client ID: PB-883-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 06:21
 Analyst: EK
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.025	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	91		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15 D
 Client ID: PB-883-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:25
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/22/21 12:00
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.99	0.12	5
Fluorene	ND		mg/kg	0.99	0.096	5
Phenanthrene	ND		mg/kg	0.59	0.12	5
Anthracene	ND		mg/kg	0.59	0.19	5
Pyrene	0.36	J	mg/kg	0.59	0.098	5
Benzo(a)anthracene	ND		mg/kg	0.59	0.11	5
Chrysene	0.43	J	mg/kg	0.59	0.10	5
Benzo(b)fluoranthene	ND		mg/kg	0.59	0.17	5
Benzo(a)pyrene	ND		mg/kg	0.79	0.24	5
Benzo(ghi)perylene	ND		mg/kg	0.79	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16 D
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 15:11
 Analyst: CMM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.90	0.11	5
Fluorene	0.29	J	mg/kg	0.90	0.087	5
Phenanthrene	0.43	J	mg/kg	0.54	0.11	5
Anthracene	ND		mg/kg	0.54	0.18	5
Pyrene	0.20	J	mg/kg	0.54	0.089	5
Benzo(a)anthracene	0.13	J	mg/kg	0.54	0.10	5
Chrysene	0.36	J	mg/kg	0.54	0.094	5
Benzo(b)fluoranthene	ND		mg/kg	0.54	0.15	5
Benzo(a)pyrene	ND		mg/kg	0.72	0.22	5
Benzo(ghi)perylene	ND		mg/kg	0.72	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17 D
 Client ID: PB-883-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:50
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/21/21 15:35
 Analyst: CMM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.91	0.11	5
Fluorene	0.25	J	mg/kg	0.91	0.088	5
Phenanthrene	0.52	J	mg/kg	0.54	0.11	5
Anthracene	ND		mg/kg	0.54	0.18	5
Pyrene	0.19	J	mg/kg	0.54	0.090	5
Benzo(a)anthracene	ND		mg/kg	0.54	0.10	5
Chrysene	0.37	J	mg/kg	0.54	0.094	5
Benzo(b)fluoranthene	ND		mg/kg	0.54	0.15	5
Benzo(a)pyrene	ND		mg/kg	0.72	0.22	5
Benzo(ghi)perylene	ND		mg/kg	0.72	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	66		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18
 Client ID: PB-883-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:00
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 13:36
 Analyst: SLR
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	0.027	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	112		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	80		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19
 Client ID: PB-883-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:05
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:08
 Analyst: EK
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20
 Client ID: PB-883-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:31
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 12/20/21 07:55
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22
 Client ID: FB-211208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/18/21 17:35
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.09	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	74		15-120
4-Terphenyl-d14	86		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/18/21 18:37
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.1		ug/l	0.10	0.05	1
Fluorene	0.02	J	ug/l	0.10	0.01	1
Phenanthrene	0.13		ug/l	0.05	0.02	1
Anthracene	0.03	J	ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	75		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23 RE
 Client ID: FB-211208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 12/26/21 14:09
 Analyst: DV

Extraction Method: EPA 3510C
 Extraction Date: 12/23/21 18:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	88		15-120
4-Terphenyl-d14	101		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/18/21 17:14
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/14/21 00:07

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 22-23 Batch: WG1582804-1					
Naphthalene	0.06	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	0.01	J	ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	79		15-120
4-Terphenyl-d14	90		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 12/19/21 22:15
Analyst: EK

Extraction Method: EPA 3546
Extraction Date: 12/18/21 20:28

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 08-21 Batch: WG1585095-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.097	0.020
Anthracene	ND		mg/kg	0.097	0.032
Pyrene	ND		mg/kg	0.097	0.016
Benzo(a)anthracene	ND		mg/kg	0.097	0.018
Chrysene	ND		mg/kg	0.097	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.097	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.039
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	100		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 12/26/21 13:50
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/23/21 15:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23 Batch: WG1587278-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	74		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 22-23 Batch: WG1582804-2 WG1582804-3								
Naphthalene	81		77		40-140	5		40
Fluorene	86		84		40-140	2		40
Phenanthrene	79		78		40-140	1		40
Anthracene	89		87		40-140	2		40
Pyrene	90		89		26-127	1		40
Benzo(a)anthracene	81		80		40-140	1		40
Chrysene	91		92		40-140	1		40
Benzo(b)fluoranthene	81		83		40-140	2		40
Benzo(a)pyrene	91		89		40-140	2		40
Benzo(ghi)perylene	82		80		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		82		23-120
2-Fluorobiphenyl	90		84		15-120
4-Terphenyl-d14	95		94		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 08-21 Batch: WG1585095-2 WG1585095-3								
Naphthalene	75		88		40-140	16		50
Fluorene	83		99		40-140	18		50
Phenanthrene	81		95		40-140	16		50
Anthracene	82		96		40-140	16		50
Pyrene	82		97		35-142	17		50
Benzo(a)anthracene	86		103		40-140	18		50
Chrysene	82		98		40-140	18		50
Benzo(b)fluoranthene	84		106		40-140	23		50
Benzo(a)pyrene	81		98		40-140	19		50
Benzo(ghi)perylene	91		109		40-140	18		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	73		84		23-120
2-Fluorobiphenyl	83		98		30-120
4-Terphenyl-d14	89		104		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23 Batch: WG1587278-2 WG1587278-3								
Naphthalene	56		65		40-140	15		40
Fluorene	62		71		40-140	14		40
Phenanthrene	60		73		40-140	20		40
Anthracene	64		73		40-140	13		40
Pyrene	65		88		26-127	30		40
Benzo(a)anthracene	62		81		40-140	27		40
Chrysene	61		82		40-140	29		40
Benzo(b)fluoranthene	69		96		40-140	33		40
Benzo(a)pyrene	67		91		40-140	30		40
Benzo(ghi)perylene	57		76		40-140	29		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	55		63		23-120
2-Fluorobiphenyl	63		70		15-120
4-Terphenyl-d14	68		78		41-149

METALS



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-08

Date Collected: 12/08/21 11:35

Client ID: PB-883-08-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.8		mg/kg	2.48	0.133	1	12/20/21 23:32	12/22/21 00:53	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-09

Date Collected: 12/08/21 11:55

Client ID: PB-883-09-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.18		mg/kg	2.03	0.109	1	12/20/21 23:32	12/22/21 00:34	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10

Date Collected: 12/08/21 12:15

Client ID: PB-883-10-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.67		mg/kg	2.14	0.114	1	12/20/21 23:32	12/22/21 00:39	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-11
 Client ID: PB-883-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:45
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.25		mg/kg	2.32	0.124	1	12/20/21 23:32	12/22/21 00:44	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-12

Date Collected: 12/08/21 13:00

Client ID: PB-883-12-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.0		mg/kg	2.27	0.122	1	12/20/21 23:32	12/22/21 00:48	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-13

Date Collected: 12/08/21 13:10

Client ID: PB-883-13-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.72		mg/kg	2.44	0.130	1	12/20/21 23:32	12/22/21 01:25	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-14

Date Collected: 12/08/21 13:20

Client ID: PB-883-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.14		mg/kg	2.35	0.126	1	12/20/21 23:32	12/22/21 01:30	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-15

Date Collected: 12/08/21 13:25

Client ID: PB-883-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.62		mg/kg	2.28	0.122	1	12/20/21 23:32	12/22/21 01:35	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16

Date Collected: 12/08/21 13:40

Client ID: PB-883-17-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.06		mg/kg	4.20	0.225	2	12/20/21 23:32	12/22/21 11:19	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-17

Date Collected: 12/08/21 13:50

Client ID: PB-883-18-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.49		mg/kg	4.24	0.227	2	12/20/21 23:32	12/22/21 11:24	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-18

Date Collected: 12/08/21 14:00

Client ID: PB-883-19-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.75		mg/kg	4.24	0.228	2	12/20/21 23:32	12/22/21 11:29	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-19

Date Collected: 12/08/21 14:05

Client ID: PB-883-22-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.03		mg/kg	2.25	0.121	1	12/20/21 23:32	12/22/21 01:54	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-20

Date Collected: 12/08/21 14:15

Client ID: PB-883-23-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.64		mg/kg	2.26	0.121	1	12/20/21 23:32	12/22/21 01:58	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21

Date Collected: 12/08/21 14:30

Client ID: PB-883-24-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.46		mg/kg	2.27	0.122	1	12/20/21 23:32	12/22/21 02:03	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-22

Date Collected: 12/08/21 14:40

Client ID: FB-211208-1

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:53	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-23

Date Collected: 12/08/21 14:45

Client ID: FB-211208-2

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	12/14/21 05:12	12/17/21 02:57	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 22-23 Batch: WG1582832-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/14/21 05:12	12/16/21 23:54	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 08-21 Batch: WG1585605-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/20/21 23:32	12/22/21 00:16	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 Batch: WG1582832-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 08-21 Batch: WG1585605-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 QC Batch ID: WG1582832-3 WG1582832-4 QC Sample: L2167147-05 Client ID: MS Sample												
Lead, Total	1.973	530	492.8	93		482.8	91		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 08-21 QC Batch ID: WG1585605-3 QC Sample: L2167531-08 Client ID: PB-883-08-SS01												
Lead, Total	12.8	51	44.9	63	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 08-21 QC Batch ID: WG1585605-4 QC Sample: L2167531-08 Client ID: PB-883-08-SS01						
Lead, Total	12.8	10.9	mg/kg	16		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-01

Date Collected: 12/08/21 09:10

Client ID: PB-253-11-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-02
 Client ID: PB-253-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 09:20
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.5		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-03

Date Collected: 12/08/21 09:35

Client ID: PB-253-13-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-04

Date Collected: 12/08/21 09:50

Client ID: PB-253-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-05

Date Collected: 12/08/21 10:00

Client ID: PB-253-15-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-06

Date Collected: 12/08/21 10:15

Client ID: PB-253-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-07

Date Collected: 12/08/21 10:30

Client ID: PB-253-17-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-08

Date Collected: 12/08/21 11:35

Client ID: PB-883-08-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-09

Date Collected: 12/08/21 11:55

Client ID: PB-883-09-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.6		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-10
 Client ID: PB-883-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 12:15
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-11

Date Collected: 12/08/21 12:45

Client ID: PB-883-11-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-12

Date Collected: 12/08/21 13:00

Client ID: PB-883-12-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-13

Date Collected: 12/08/21 13:10

Client ID: PB-883-13-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-14

Date Collected: 12/08/21 13:20

Client ID: PB-883-14-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-15

Date Collected: 12/08/21 13:25

Client ID: PB-883-16-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-16
 Client ID: PB-883-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 13:40
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-17

Date Collected: 12/08/21 13:50

Client ID: PB-883-18-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.9		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-18

Date Collected: 12/08/21 14:00

Client ID: PB-883-19-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.1		%	0.100	NA	1	-	12/10/21 10:12	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-19

Date Collected: 12/08/21 14:05

Client ID: PB-883-22-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-20

Date Collected: 12/08/21 14:15

Client ID: PB-883-23-SS01

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

SAMPLE RESULTS

Lab ID: L2167531-21
 Client ID: PB-883-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/21 14:30
 Date Received: 12/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**SAMPLE RESULTS**

Lab ID: L2167531-24

Date Collected: 12/08/21 00:00

Client ID: DUP-24

Date Received: 12/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	12/10/21 10:21	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2167531

Report Date: 12/27/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-18 QC Batch ID: WG1581531-1 QC Sample: L2167531-01 Client ID: PB-253-11-SS01						
Solids, Total	86.9	85.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 19-21,24 QC Batch ID: WG1581534-1 QC Sample: L2167542-04 Client ID: DUP Sample						
Solids, Total	89.6	90.1	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-01A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-01B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-01C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-01D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-02A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-02B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-02C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-02D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-03A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-03B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-03C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-03D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-04A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-04B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-04C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-04D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-05A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-05B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-05C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-05D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-06A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-06B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-06C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-06D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-07A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-07B	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-07C	Vial water preserved	A	NA		2.2	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-07D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2167531-08A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-08B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-08C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-08D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-08F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-09A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-09B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-09C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-09D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-09E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-09F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-10A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-10B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-10C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-10D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-10E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-10F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-11A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-11B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-11C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-11D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-11F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-12A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-12B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-12C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-12D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-12F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-13A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-13B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-13C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-13D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-13F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-14A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-14B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-14C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-14D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-14E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-14F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)
L2167531-15A	Vial MeOH preserved	C	NA		2.6	Y	Absent		PA-8260HLW(14)
L2167531-15B	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-15C	Vial water preserved	C	NA		2.6	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-15D	Plastic 2oz unpreserved for TS	C	NA		2.6	Y	Absent		TS(7)
L2167531-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.6	Y	Absent		PB-TI(180)
L2167531-15F	Glass 120ml/4oz unpreserved	C	NA		2.6	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-16A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-16B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-16C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-16D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-16E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-16F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-17A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-17B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-17C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-17D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-17E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-17F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-18A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2167531-18B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-18C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-18D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-18F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-19A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-19B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-19C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-19D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-19E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-19F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-20A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-20B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-20C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-20D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2167531**Project Number:** 200.00135.005.03**Report Date:** 12/27/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2167531-20E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		2.5	Y	Absent		PB-TI(180)
L2167531-20F	Glass 120ml/4oz unpreserved	D	NA		2.5	Y	Absent		PA-PAH(14)
L2167531-21A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2167531-21B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-21C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-21D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2167531-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2167531-21F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2167531-22A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-22B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-22C	Vial HCl preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-22D	Plastic 250ml HNO3 preserved	A	<2	<2	2.2	Y	Absent		PB-6020T-PPB(180)
L2167531-22E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-22F	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-23A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-23B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-23C	Vial HCl preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-23D	Plastic 250ml HNO3 preserved	A	<2	<2	2.2	Y	Absent		PB-6020T-PPB(180)
L2167531-23E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-23F	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		PA-PAHSIM-LVI(7)
L2167531-24A	Vial MeOH preserved	D	NA		2.5	Y	Absent		PA-8260HLW(14)
L2167531-24B	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-24C	Vial water preserved	D	NA		2.5	Y	Absent	09-DEC-21 13:08	PA-8260HLW(14)
L2167531-24D	Plastic 2oz unpreserved for TS	D	NA		2.5	Y	Absent		TS(7)
L2167531-25A	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-25B	Vial HCl preserved	A	NA		2.2	Y	Absent		PA-8260(14)
L2167531-25C	Vial Na2S2O3 preserved	A	NA		2.2	Y	Absent		8011(14)
L2167531-25D	Vial Na2S2O3 preserved	A	NA		2.2	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Serial_No:12272116:29

Lab Number: L2167531

Report Date: 12/27/21

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2167531
Report Date: 12/27/21

Data Qualifiers

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2167531

Project Number: 200.00135.005.03

Report Date: 12/27/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.


EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L2167531

CHAIN OF CUSTODY PAGE 1 of 3



Westborough, MA Mansfield, MA
 TEL: 508-898-8220 TEL: 508-822-8300
 FAX: 508-898-8100 FAX: 508-872-3700

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13181

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531 GC

Report Information, Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4874

Fax: Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com


ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS						pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist	SAMPLE HANDLING <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please specify below)	TOTAL BOTTLES
		Date	Time			PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)							
67531-01	PB-253-11-5501	12/8	0910	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-02	PB-253-12-5501		0920	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-03	PB-253-13-5501		0935	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-04	PB-253-14-5501		0950	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-05	PB-253-15-5501		1000	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-06	PB-253-16-5501		1015	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-07	PB-253-17-5501		1030	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-08	PB-883-08-5501		1135	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-09	PB-883-09-5501		1155	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
-10	PB-883-10-5501		1215	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6

Container Type	G	G	G	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8/21 1533	<i>[Signature]</i>	12/8/21 1500
<i>[Signature]</i>	12/8/21 1730	<i>[Signature]</i>	12-8-21 1730
<i>[Signature]</i>	12-8-21 2050	<i>[Signature]</i>	12/8/21 2000
<i>[Signature]</i>	12/9/21	<i>[Signature]</i>	12/9/21 1315
<i>[Signature]</i>	12/9/21 0520	<i>[Signature]</i>	12/9/21 0520

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY PAGE 2 OF 3



Westborough, MA
TEL: 508-898-9220
FAX: 508-898-0195

Mansfield, MA
TEL: 508-422-5300
FAX: 508-472-1700

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Report Information

FAX EMAIL Add'l Deliverables

ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3894

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist
67551-11	PB-883-11-5501	12/8	1245	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-12	PB-883-12-5501		1300	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-13	PB-883-13-5501		1310	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-14	PB-883-14-5501		1320	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-15	PB-883-15-5501		1325	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-16	PB-883-16-5501		1340	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-17	PB-883-17-5501		1350	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-18	PB-883-18-5501		1400	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-19	PB-883-19-5501		1405	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-20	PB-883-20-5501		1415	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Loaded/Unloaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jerry@hikoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Mat'x	Sampler's Initials	Container Type	Preservative
		Date	Time				
						G	F

Relinquished By: *[Signature]* Date/Time: 12/8/21 1553

[Signature] Date/Time: 12/8/21 1730

[Signature] Date/Time: 12/8/21 2033

[Signature] Date/Time: 12/9/21 0512

Received By: *[Signature]* Date/Time: 12/8/21 15:30

[Signature] Date/Time: 12/8/21 17:00

[Signature] Date/Time: 12/8/21 21:00

[Signature] Date/Time: 12/9/21 0515


[Signature] Date/Time: 12/9/21 0520

SAMPLE HANDLING

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA
TEL: 508-856-9220
FAX: 508-858-8100

Mansfield, MA
TEL: 508-832-9000
FAX: 508-832-3238

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 12/9/21

ALPHA Job #: L2167531

Report Information

FAX EMAIL

ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jgray@hlcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										SAMPLE HANDLING	TOTAL	
		Date	Time			PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol			VOC portion of PADEP Shortlist (0-5)
67531-21	PB-893-24-5501	12/8	1430	S	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
-22	FB-211208-1	}	1440	W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-23	FB-211208-2		1445	W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-24	DUP-2A		-	S	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-25	PB-211208		-	W	TS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Container Type

G	B	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Please print clearly, legibly and completely. Samples cannot be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Requisitioned By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8/21 1533	<i>[Signature]</i>	12/9/21 1535
<i>[Signature]</i>	12/9/21 1230	<i>[Signature]</i>	12/9/21 1330
<i>[Signature]</i>	12/9/21 1230	<i>[Signature]</i>	12/9/21 2100

PADEP Short List Analytical List:

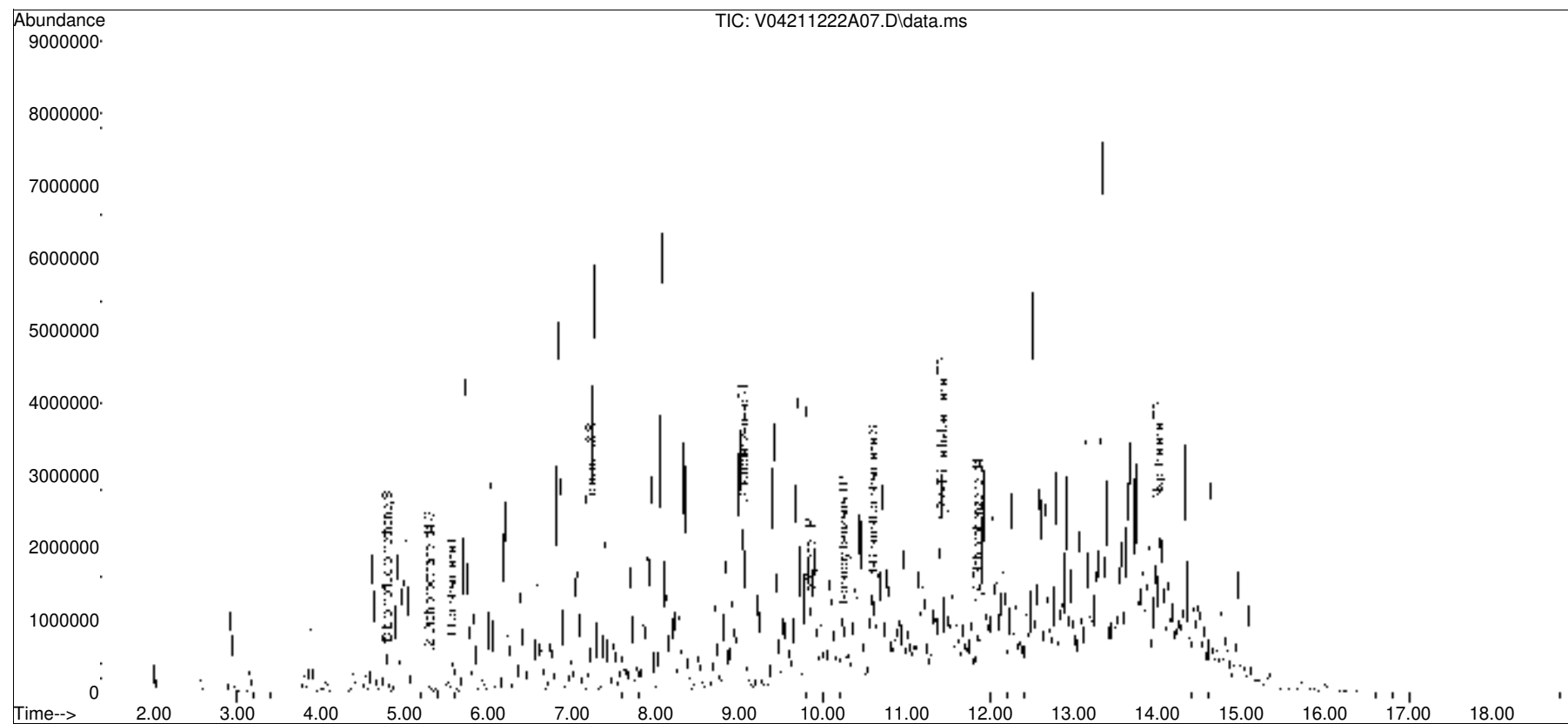
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211222A\
Data File : V04211222A07.D
Acq On : 22 Dec 2021 8:04 am
Operator : VOA104:MV
Sample : L2167531-17,31H,4.66,5,0.100,,A
Misc : WG1586695,18128ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 22 12:12:01 2021
Quant Method : I:\VOLATILES\VOA104\2021\211222A\V104_211214A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V04211222A01.D•





ANALYTICAL REPORT

Lab Number:	L2235694
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/11/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235694-01	PB-821-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:00	07/05/22
L2235694-02	PB-821-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:10	07/05/22
L2235694-03	PB-821-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:20	07/05/22
L2235694-04	PB-821-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:30	07/05/22
L2235694-05	PB-821-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:40	07/05/22
L2235694-06	PB-821-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:50	07/05/22
L2235694-07	PB-821-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:00	07/05/22
L2235694-08	PB-821-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:10	07/05/22
L2235694-09	PB-821-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:20	07/05/22
L2235694-10	PB-821-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:30	07/05/22
L2235694-11	PB-821-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:40	07/05/22
L2235694-12	PB-821-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:50	07/05/22
L2235694-13	PB-822-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:00	07/05/22
L2235694-14	PB-822-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:10	07/05/22
L2235694-15	PB-822-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:20	07/05/22
L2235694-16	PB-822-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:30	07/05/22
L2235694-17	PB-822-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:40	07/05/22
L2235694-18	PB-822-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:50	07/05/22
L2235694-19	PB-822-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:00	07/05/22
L2235694-20	PB-822-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:10	07/05/22
L2235694-21	PB-822-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:20	07/05/22
L2235694-22	PB-822-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:30	07/05/22
L2235694-23	PB-822-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:40	07/05/22
L2235694-24	PB-822-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:50	07/05/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235694-25	PB-822-13-SS01	SOIL	PHILADELPHIA, PA	07/05/22 14:00	07/05/22
L2235694-26	FB-070522-1	WATER	PHILADELPHIA, PA	07/05/22 14:30	07/05/22
L2235694-27	FB-070522-2	WATER	PHILADELPHIA, PA	07/05/22 14:35	07/05/22
L2235694-28	FB-070522-3	WATER	PHILADELPHIA, PA	07/05/22 14:40	07/05/22
L2235694-29	DUP-32	SOIL	PHILADELPHIA, PA	07/05/22 00:00	07/05/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative (continued)

Report Revision

July 11, 2022: The Volatile Organics WG1660349-3/-4 LCS/LCSD has been included.

Report Submission

July 08, 2022: This final report includes the results of all requested analyses.

July 07, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235694-29: The Client ID was specified by the client.

Volatile Organics

L2235694-17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235694-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (177%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235694-23: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235694-25: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Case Narrative (continued)

The WG1659351-3 MS recovery, performed on L2235694-01, is outside the acceptance criteria for lead (68%). A post digestion spike was performed and yielded an unacceptable recovery for lead (70%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1659355-3 MS recovery, performed on L2235694-21, is outside the acceptance criteria for lead (60%). A post digestion spike was performed and yielded an unacceptable recovery for lead (65%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/11/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:20
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00039	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00078	0.00020	1
Toluene	ND		mg/kg	0.00078	0.00042	1
1,2-Dibromoethane	ND		mg/kg	0.00039	0.00023	1
Ethylbenzene	ND		mg/kg	0.00078	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00044	1
o-Xylene	ND		mg/kg	0.00078	0.00023	1
Xylenes, Total	ND		mg/kg	0.00078	0.00023	1
Isopropylbenzene	ND		mg/kg	0.00078	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:16
 Analyst: LAC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03
 Client ID: PB-821-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:45
 Analyst: LAC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:53
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00026	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:17
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06
 Client ID: PB-821-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:40
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07
 Client ID: PB-821-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:03
 Analyst: NLK
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:27
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00027	1
Xylenes, Total	ND		mg/kg	0.00091	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09
 Client ID: PB-821-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:50
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10
 Client ID: PB-821-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:14
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11
 Client ID: PB-821-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:37
 Analyst: MKS
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12
 Client ID: PB-821-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:00
 Analyst: MKS
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	ND		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00028	1
Xylenes, Total	ND		mg/kg	0.00098	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13
 Client ID: PB-822-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:24
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14
 Client ID: PB-822-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 22:22
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15
 Client ID: PB-822-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:11
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:34
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:58
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	ND		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.055	0.0078	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.055	0.016	1
Xylenes, Total	ND		mg/kg	0.055	0.016	1
Isopropylbenzene	0.040	J	mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	177	Q	70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18
 Client ID: PB-822-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:44
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:10
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:36
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:02
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22
 Client ID: PB-822-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:28
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.00019	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 05:33
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.72		mg/kg	0.056	0.0078	1
p/m-Xylene	1.9		mg/kg	0.11	0.031	1
o-Xylene	0.38		mg/kg	0.056	0.016	1
Xylenes, Total	2.3		mg/kg	0.056	0.016	1
Isopropylbenzene	1.4		mg/kg	0.056	0.0060	1
1,3,5-Trimethylbenzene	5.2		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23 D
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:03
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	15.		mg/kg	0.22	0.037	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:20
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	0.00017	J	mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25
 Client ID: PB-822-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:50
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	0.013		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.00092	J	mg/kg	0.0021	0.00060	1
o-Xylene	0.0018		mg/kg	0.0011	0.00031	1
Xylenes, Total	0.0027	J	mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.0064		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0025		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.028		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 09:50
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:08
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	130		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 09:57
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:32
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	132	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:03
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 13:56
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	131	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29
 Client ID: DUP-32
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:12
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/07/22 09:30
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 26-28 Batch: WG1659742-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/22 10:17
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26-28 Batch: WG1659839-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	127		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:28
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/07/22 08:54
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-13,15-16 Batch: WG1660063-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18-22,24,29 Batch: WG1660066-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:54
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17 Batch: WG1660349-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1660398-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 14 Batch: WG1660426-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 25 Batch: WG1660450-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1660454-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 26-28 Batch: WG1659742-2									
1,2-Dibromoethane	120		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 26-28 Batch: WG1659839-3 WG1659839-4								
Methyl tert butyl ether	86		86		63-130	0		20
Benzene	120		110		70-130	9		20
1,2-Dichloroethane	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		105		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	115		110		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-13,15-16 Batch: WG1660063-3 WG1660063-4								
Methyl tert butyl ether	89		84		66-130	6		30
Benzene	85		82		70-130	4		30
1,2-Dichloroethane	72		69	Q	70-130	4		30
Toluene	84		79		70-130	6		30
1,2-Dibromoethane	92		89		70-130	3		30
Ethylbenzene	84		79		70-130	6		30
p/m-Xylene	88		82		70-130	7		30
o-Xylene	87		82		70-130	6		30
Isopropylbenzene	85		78		70-130	9		30
1,3,5-Trimethylbenzene	85		78		70-130	9		30
1,2,4-Trimethylbenzene	86		78		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		82		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		95		70-130
Dibromofluoromethane	91		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18-22,24,29 Batch: WG1660066-3 WG1660066-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17 Batch: WG1660349-3 WG1660349-4								
Methyl tert butyl ether	89		84		66-130	6		30
Benzene	85		82		70-130	4		30
1,2-Dichloroethane	72		69	Q	70-130	4		30
Toluene	84		79		70-130	6		30
1,2-Dibromoethane	92		89		70-130	3		30
Ethylbenzene	84		79		70-130	6		30
p/m-Xylene	88		82		70-130	7		30
o-Xylene	87		82		70-130	6		30
Isopropylbenzene	85		78		70-130	9		30
1,3,5-Trimethylbenzene	85		78		70-130	9		30
1,2,4-Trimethylbenzene	86		78		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		82		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		95		70-130
Dibromofluoromethane	91		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1660398-3 WG1660398-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 14 Batch: WG1660426-3 WG1660426-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
1,2-Dichloroethane	73		77		70-130	5		30
Toluene	93		94		70-130	1		30
1,2-Dibromoethane	97		100		70-130	3		30
Ethylbenzene	93		93		70-130	0		30
p/m-Xylene	96		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 25 Batch: WG1660450-3 WG1660450-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1660454-3 WG1660454-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

SEMIVOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:22
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	147	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:50
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	130	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03
 Client ID: PB-821-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:40
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	0.083	J	mg/kg	0.18	0.017	1
Phenanthrene	0.22		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.11		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.031	J	mg/kg	0.10	0.020	1
Chrysene	0.098	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:19
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	131	Q	23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 14:36
 Analyst: ALS
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	48		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06
 Client ID: PB-821-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:36
 Analyst: IM
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07
 Client ID: PB-821-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:46
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:26
 Analyst: IM
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	161	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09
 Client ID: PB-821-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:26
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	132	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10
 Client ID: PB-821-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:53
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11
 Client ID: PB-821-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:30
 Analyst: IM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	127	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	81		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12
 Client ID: PB-821-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:02
 Analyst: IM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	154	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	91		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13
 Client ID: PB-822-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:33
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	131	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14
 Client ID: PB-822-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 23:49
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15
 Client ID: PB-822-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:12
 Analyst: IM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.13	0.026	1
Anthracene	ND		mg/kg	0.13	0.041	1
Pyrene	ND		mg/kg	0.13	0.021	1
Benzo(a)anthracene	ND		mg/kg	0.13	0.024	1
Chrysene	ND		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.13	0.036	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.052	1
Benzo(ghi)perylene	ND		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 14:58
 Analyst: ALS
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:43
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	0.052	J	mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18
 Client ID: PB-822-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 15:21
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 15:44
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:16
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:56
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	130	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	76		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22
 Client ID: PB-822-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:09
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	107		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23
 Client ID: PB-822-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 16:06
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.6		mg/kg	0.19	0.024	1
Fluorene	2.7		mg/kg	0.19	0.019	1
Phenanthrene	5.2		mg/kg	0.12	0.024	1
Anthracene	0.77		mg/kg	0.12	0.038	1
Pyrene	0.43		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.12		mg/kg	0.12	0.022	1
Chrysene	0.42		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	152	Q	23-120
2-Fluorobiphenyl	43		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/06/22 16:29
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25
 Client ID: PB-822-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:06
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.22		mg/kg	0.19	0.018	1
Phenanthrene	0.24		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	129	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	60		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26
 Client ID: FB-070522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 09:12
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.01	J	ug/l	0.10	0.01	1
Phenanthrene	0.02	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	89		15-120
4-Terphenyl-d14	94		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27
 Client ID: FB-070522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:35
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 09:28
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.01	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	78		15-120
4-Terphenyl-d14	86		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:08
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 19:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	46		15-120
4-Terphenyl-d14	48		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29
 Client ID: DUP-32
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:59
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 06:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	81		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/06/22 20:42
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06-15,17,20-22,25,29 Batch: WG1659228-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	146	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/06/22 14:13
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 05,16,18-19,23-24 Batch: WG1659229-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/08/22 12:06
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 28 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/07/22 08:23
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 26-27 Batch: WG1660007-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	94		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06-15,17,20-22,25,29 Batch: WG1659228-2 WG1659228-3								
Naphthalene	78		78		40-140	0		50
Fluorene	83		86		40-140	4		50
Phenanthrene	80		82		40-140	2		50
Anthracene	82		85		40-140	4		50
Pyrene	82		83		35-142	1		50
Benzo(a)anthracene	88		88		40-140	0		50
Chrysene	86		88		40-140	2		50
Benzo(b)fluoranthene	89		94		40-140	5		50
Benzo(a)pyrene	93		97		40-140	4		50
Benzo(ghi)perylene	83		85		40-140	2		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	151	Q	144	Q	23-120
2-Fluorobiphenyl	75		76		30-120
4-Terphenyl-d14	89		92		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 05,16,18-19,23-24 Batch: WG1659229-2 WG1659229-3								
Naphthalene	52		63		40-140	19		50
Fluorene	61		66		40-140	8		50
Phenanthrene	54		60		40-140	11		50
Anthracene	57		63		40-140	10		50
Pyrene	59		64		35-142	8		50
Benzo(a)anthracene	62		68		40-140	9		50
Chrysene	61		66		40-140	8		50
Benzo(b)fluoranthene	71		76		40-140	7		50
Benzo(a)pyrene	72		77		40-140	7		50
Benzo(ghi)perylene	58		63		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	50		59		23-120
2-Fluorobiphenyl	60		70		30-120
4-Terphenyl-d14	71		75		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 28 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 26-27 Batch: WG1660007-2 WG1660007-3								
Naphthalene	81		87		40-140	7		40
Fluorene	86		89		40-140	3		40
Phenanthrene	85		87		40-140	2		40
Anthracene	87		87		40-140	0		40
Pyrene	89		91		26-127	2		40
Benzo(a)anthracene	86		87		40-140	1		40
Chrysene	82		87		40-140	6		40
Benzo(b)fluoranthene	90		86		40-140	5		40
Benzo(a)pyrene	85		86		40-140	1		40
Benzo(ghi)perylene	89		95		40-140	7		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	72		85		15-120
4-Terphenyl-d14	87		91		41-149

METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-01
 Client ID: PB-821-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	23.1		mg/kg	2.23	0.119	1	07/06/22 11:10	07/07/22 07:43	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02

Date Collected: 07/05/22 09:10

Client ID: PB-821-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.6		mg/kg	2.21	0.118	1	07/06/22 11:10	07/07/22 07:28	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-03

Date Collected: 07/05/22 09:20

Client ID: PB-821-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.59		mg/kg	2.02	0.108	1	07/06/22 11:10	07/07/22 07:33	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04

Date Collected: 07/05/22 09:30

Client ID: PB-821-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.60		mg/kg	2.31	0.124	1	07/06/22 11:10	07/07/22 07:38	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-05
 Client ID: PB-821-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.81		mg/kg	2.40	0.129	1	07/06/22 11:10	07/07/22 08:16	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-06

Date Collected: 07/05/22 09:50

Client ID: PB-821-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.13		mg/kg	2.47	0.132	1	07/06/22 11:10	07/07/22 08:21	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-07

Date Collected: 07/05/22 10:00

Client ID: PB-821-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.40		mg/kg	2.13	0.114	1	07/06/22 11:10	07/07/22 08:26	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-08
 Client ID: PB-821-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.34		mg/kg	2.16	0.116	1	07/06/22 11:10	07/07/22 08:31	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-09

Date Collected: 07/05/22 10:20

Client ID: PB-821-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.77		mg/kg	2.10	0.113	1	07/06/22 11:10	07/07/22 08:35	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-10

Date Collected: 07/05/22 10:30

Client ID: PB-821-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.7		mg/kg	2.26	0.121	1	07/06/22 11:10	07/07/22 08:40	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-11

Date Collected: 07/05/22 10:40

Client ID: PB-821-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.82		mg/kg	2.01	0.108	1	07/06/22 11:10	07/07/22 08:45	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-12

Date Collected: 07/05/22 10:50

Client ID: PB-821-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.44		mg/kg	2.01	0.108	1	07/06/22 11:10	07/07/22 08:50	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-13

Date Collected: 07/05/22 12:00

Client ID: PB-822-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.86		mg/kg	2.33	0.125	1	07/06/22 11:10	07/07/22 08:54	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14

Date Collected: 07/05/22 12:10

Client ID: PB-822-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.55		mg/kg	2.36	0.127	1	07/06/22 11:10	07/07/22 08:59	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15

Date Collected: 07/05/22 12:20

Client ID: PB-822-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.10		mg/kg	2.47	0.132	1	07/06/22 11:10	07/07/22 09:34	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16

Date Collected: 07/05/22 12:30

Client ID: PB-822-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.73		mg/kg	2.44	0.130	1	07/06/22 11:10	07/07/22 09:39	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17

Date Collected: 07/05/22 12:40

Client ID: PB-822-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.65		mg/kg	2.35	0.126	1	07/06/22 11:10	07/07/22 09:44	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-18

Date Collected: 07/05/22 12:50

Client ID: PB-822-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.91		mg/kg	4.52	0.242	2	07/06/22 11:10	07/07/22 10:50	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.27		mg/kg	2.34	0.125	1	07/06/22 11:10	07/07/22 09:54	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	74.3		mg/kg	2.32	0.124	1	07/06/22 11:10	07/07/22 09:59	EPA 3050B	1,6010D	SB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.80		mg/kg	2.29	0.123	1	07/06/22 12:10	07/07/22 07:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-22

Date Collected: 07/05/22 13:30

Client ID: PB-822-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.9		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 07:37	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-23

Date Collected: 07/05/22 13:40

Client ID: PB-822-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.35		mg/kg	2.33	0.125	1	07/06/22 12:10	07/07/22 07:42	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24

Date Collected: 07/05/22 13:50

Client ID: PB-822-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.59		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 07:47	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-25

Date Collected: 07/05/22 14:00

Client ID: PB-822-13-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.94		mg/kg	2.28	0.122	1	07/06/22 12:10	07/07/22 08:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-26

Date Collected: 07/05/22 14:30

Client ID: FB-070522-1

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:49	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-27

Date Collected: 07/05/22 14:35

Client ID: FB-070522-2

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:54	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-28
 Client ID: FB-070522-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 00:59	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235694

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29

Date Collected: 07/05/22 00:00

Client ID: DUP-32

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.81		mg/kg	2.31	0.124	1	07/06/22 12:10	07/07/22 08:55	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1659351-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 11:10	07/07/22 07:19	1,6010D	SB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-25,29 Batch: WG1659355-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:10	07/07/22 07:28	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 26-28 Batch: WG1659419-1									
Lead, Total	0.6563	J ug/l	1.000	0.3430	1	07/06/22 14:45	07/06/22 22:40	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1659351-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 Batch: WG1659355-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 26-28 Batch: WG1659419-2								
Lead, Total	101		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1659351-3 QC Sample: L2235694-01 Client ID: PB-821-01-SS01												
Lead, Total	23.1	46.8	54.8	68	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659355-3 QC Sample: L2235694-21 Client ID: PB-822-09-SS01												
Lead, Total	8.80	49.7	38.6	60	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 26-28 QC Batch ID: WG1659419-3 QC Sample: L2234348-01 Client ID: MS Sample												
Lead, Total	21.56	530	573.0	104		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1659351-4 QC Sample: L2235694-01 Client ID: PB-821-01-SS01						
Lead, Total	23.1	21.7	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659355-4 QC Sample: L2235694-21 Client ID: PB-822-09-SS01						
Lead, Total	8.80	9.39	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 26-28 QC Batch ID: WG1659419-4 QC Sample: L2234348-01 Client ID: DUP Sample						
Lead, Total	21.56	21.45	ug/l	1		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-01

Date Collected: 07/05/22 09:00

Client ID: PB-821-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-02
 Client ID: PB-821-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-03

Date Collected: 07/05/22 09:20

Client ID: PB-821-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-04
 Client ID: PB-821-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-05

Date Collected: 07/05/22 09:40

Client ID: PB-821-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-06

Date Collected: 07/05/22 09:50

Client ID: PB-821-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-07

Date Collected: 07/05/22 10:00

Client ID: PB-821-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-08

Date Collected: 07/05/22 10:10

Client ID: PB-821-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-09

Date Collected: 07/05/22 10:20

Client ID: PB-821-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-10

Date Collected: 07/05/22 10:30

Client ID: PB-821-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-11

Date Collected: 07/05/22 10:40

Client ID: PB-821-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.7		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-12

Date Collected: 07/05/22 10:50

Client ID: PB-821-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.3		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-13

Date Collected: 07/05/22 12:00

Client ID: PB-822-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-14
 Client ID: PB-822-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-15
 Client ID: PB-822-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-16
 Client ID: PB-822-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-17
 Client ID: PB-822-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-18

Date Collected: 07/05/22 12:50

Client ID: PB-822-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-19
 Client ID: PB-822-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-20
 Client ID: PB-822-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-21
 Client ID: PB-822-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-22

Date Collected: 07/05/22 13:30

Client ID: PB-822-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-23

Date Collected: 07/05/22 13:40

Client ID: PB-822-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-24
 Client ID: PB-822-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235694-25

Date Collected: 07/05/22 14:00

Client ID: PB-822-13-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235694-29
 Client ID: DUP-32
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235694

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1659223-1 QC Sample: L2235694-01 Client ID: PB-821-01-SS01						
Solids, Total	85.6	85.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-25,29 QC Batch ID: WG1659225-1 QC Sample: L2235695-01 Client ID: DUP Sample						
Solids, Total	91.0	91.8	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler Custody Seal**

A	Absent
B	Absent
C	Absent
D	Absent
E	Absent
F	Absent
G	Absent
H	Absent
I	Absent
J	Absent
K	Absent
L	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-01A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-01B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-01C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-01D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-01E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-01F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-02A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-02B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-02C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-02D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-02E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-02F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-03A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-03B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-03C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-03D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-03E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-03F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-04A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-04B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-04C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-04D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-04E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-04F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-05A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-05B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-05C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-05D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-05E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-05F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-06A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235694-06B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-06C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-06D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235694-06E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235694-06F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235694-07A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235694-07B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-07C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-07D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235694-07E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235694-07F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235694-08A	Vial MeOH preserved	E	NA		5.0	Y	Absent		PA-8260HLW(14)
L2235694-08B	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-08C	Vial water preserved	E	NA		5.0	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-08D	Plastic 120ml unpreserved	E	NA		5.0	Y	Absent		TS(7)
L2235694-08E	Metals Only-Glass 60mL/2oz unpreserved	E	NA		5.0	Y	Absent		PB-TI(180)
L2235694-08F	Glass 120ml/4oz unpreserved	E	NA		5.0	Y	Absent		PA-PAH(14)
L2235694-09A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-09B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-09C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-09D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-09F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-10A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-10B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-10C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-10D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-10F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-11A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-11B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-11C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-11D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-11F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-12A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-12B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-12C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-12D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-12F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-13A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-13B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-13C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-13D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-13F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-14A	Vial MeOH preserved	A	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235694-14B	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-14C	Vial water preserved	A	NA		4.9	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-14D	Plastic 120ml unpreserved	A	NA		4.9	Y	Absent		TS(7)
L2235694-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		PB-TI(180)
L2235694-14F	Glass 120ml/4oz unpreserved	A	NA		4.9	Y	Absent		PA-PAH(14)
L2235694-15A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-15B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-15C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-15D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-15E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-15F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-16A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-16B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-16C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-16D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-16E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-16F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-17A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-17B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-17C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-17D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-17E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-17F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-18A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-18B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-18C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-18D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-18E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-18F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)
L2235694-19A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-19B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-19C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-19D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235694-19E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235694-19F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-20A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-20B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-20C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-20D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235694-20E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235694-20F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-21A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-21B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-21C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-21D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-21F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-22A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-22B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-22C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-22D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-22F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-23A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235694-23B	Vial water preserved	C	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-23C	Vial water preserved	C	NA		2.4	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-23D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2235694-23E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2235694-23F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2235694-24A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-24B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-24C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-24D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-24E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-24F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-25A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2235694-25B	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-25C	Vial water preserved	B	NA		3.3	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-25D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2235694-25E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2235694-25F	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-PAH(14)
L2235694-26A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235694**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235694-26B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-26C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-26G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-26H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-26J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-27A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-27B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-27C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-27G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-27H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-27J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-28A	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-28B	Vial HCl preserved	C	NA		2.4	Y	Absent		PA-8260(14)
L2235694-28C	Vial HCl preserved	C	NA		2.4	Y	Absent		8011(14)
L2235694-28G	Plastic 250ml HNO3 preserved	C	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2235694-28H	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-28J	Amber 250ml unpreserved	C	7	7	2.4	Y	Absent		PA-PAHSIM-LVI(7)
L2235694-29A	Vial MeOH preserved	J	NA		4.1	Y	Absent		PA-8260HLW(14)
L2235694-29B	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-29C	Vial water preserved	J	NA		4.1	Y	Absent	06-JUL-22 05:42	PA-8260HLW(14)
L2235694-29D	Plastic 120ml unpreserved	J	NA		4.1	Y	Absent		TS(7)
L2235694-29E	Metals Only-Glass 60mL/2oz unpreserved	J	NA		4.1	Y	Absent		PB-TI(180)
L2235694-29F	Glass 120ml/4oz unpreserved	J	NA		4.1	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235694
Report Date: 07/11/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard RUSH (ONLY IF PRE-APPROVED)

Due Date: **2-DAY** Time:

Westborough, MA
TEL: 508-896-8200
FAX: 508-896-9182

Manfield, MA
TEL: 508-822-6300
FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcoglobal.com

Date Rec'd in Lab: 7/6/22

ALPHA Job #: 12235694

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

Short list 1-5

ALPHA Lab ID	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
35694-01	PB-821-01-5501	7/5/22	900	S	an	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-02	PB-821-02-5501		910			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-03	PB-821-03-5501		920			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-04	PB-821-04-5501		930			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-05	PB-821-05-5501		940			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-06	PB-821-06-5501		950			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-07	PB-821-07-5501		1000			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-08	PB-821-08-5501		1010			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-09	PB-821-09-5501		1020			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-10	PB-821-10-5501		1030			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 1615	<i>[Signature]</i>	7/5/22 1615
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1801
<i>[Signature]</i>	7/5/22 2000	<i>[Signature]</i>	7/5/22 2000
<i>[Signature]</i>	7/5/22	<i>[Signature]</i>	7/5/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

Mansfield, MA
 TEL: 508-827-9300
 FAX: 508-827-3288

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Fax:
 Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

2-DAY

Date Rec'd in Lab: 7/16/22

ALPHA Job #: L2235694

Report Information Data Deliverables

FAX EMAIL
 ADE+ Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

SAMPLE HANDLING

- Filtration
- Done
- Not Needed
- Lab to do Preservation
- Lab to do (Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS																				
		Date	Time			1	2	3	4	5	6	7	8	9	10	11	12									
35694-11	PB-821-11-5501	7/5/22	1040	S	a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-12	PB-821-12-5501		1050			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-13	PB-822-01-5501		1200			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-14	PB-822-02-5501		1210			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-15	PB-822-03-5501		1230			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-16	PB-822-04-5501		1250			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-17	PB-822-05-5501		1240			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-18	PB-822-06-5501		1250			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-19	PB-822-07-5501		1300			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-20	PB-822-08-5501		1510			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Skor 1st 1-5

Container Type - - - - -

Preservative - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 105	<i>[Signature]</i>	7/5/22 105
<i>[Signature]</i>	7/5/22 175	<i>[Signature]</i>	7/5/22 175
<i>[Signature]</i>	7/5/22 210	<i>[Signature]</i>	7/5/22 210
<i>[Signature]</i>	7/5/22	<i>[Signature]</i>	7/5/22 233

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA
 TEL: 508-299-9229
 FAX: 508-859-9193

Mansfield, MA
 TEL: 508-822-9300
 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date:

Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@toraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcoglobal.com

Date Rec'd in Lab: 7/6/22

ALPHA Job #: L2235694

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEs Add'l Deliverables

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

Short list 1-5

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

SAMPLE HANDLING

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials																	
		Date	Time																			
85694-21	PB-822-09-5501	7/5/22	1320	S	a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-22	PB-822-10-5501		1330			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-23	PB-822-11-5501		1340			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-24	PB-822-12-5501		1350			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-25	PB-822-15-5501		1400			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-26	FB-070522-1		1430	W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-27	FB-070522-2		1435			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-28	FB-070522-3		1440			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-29	DUP-29		-	S	a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample Specific Comments

Container Type: - - 0 - - - -
 Preservatives: - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 1415	<i>[Signature]</i>	7/5/22 1415
<i>[Signature]</i>	7/5/22 1725	<i>[Signature]</i>	7/5/22 1820
<i>[Signature]</i>	7/5/22 2100	<i>[Signature]</i>	7/5/22 2200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

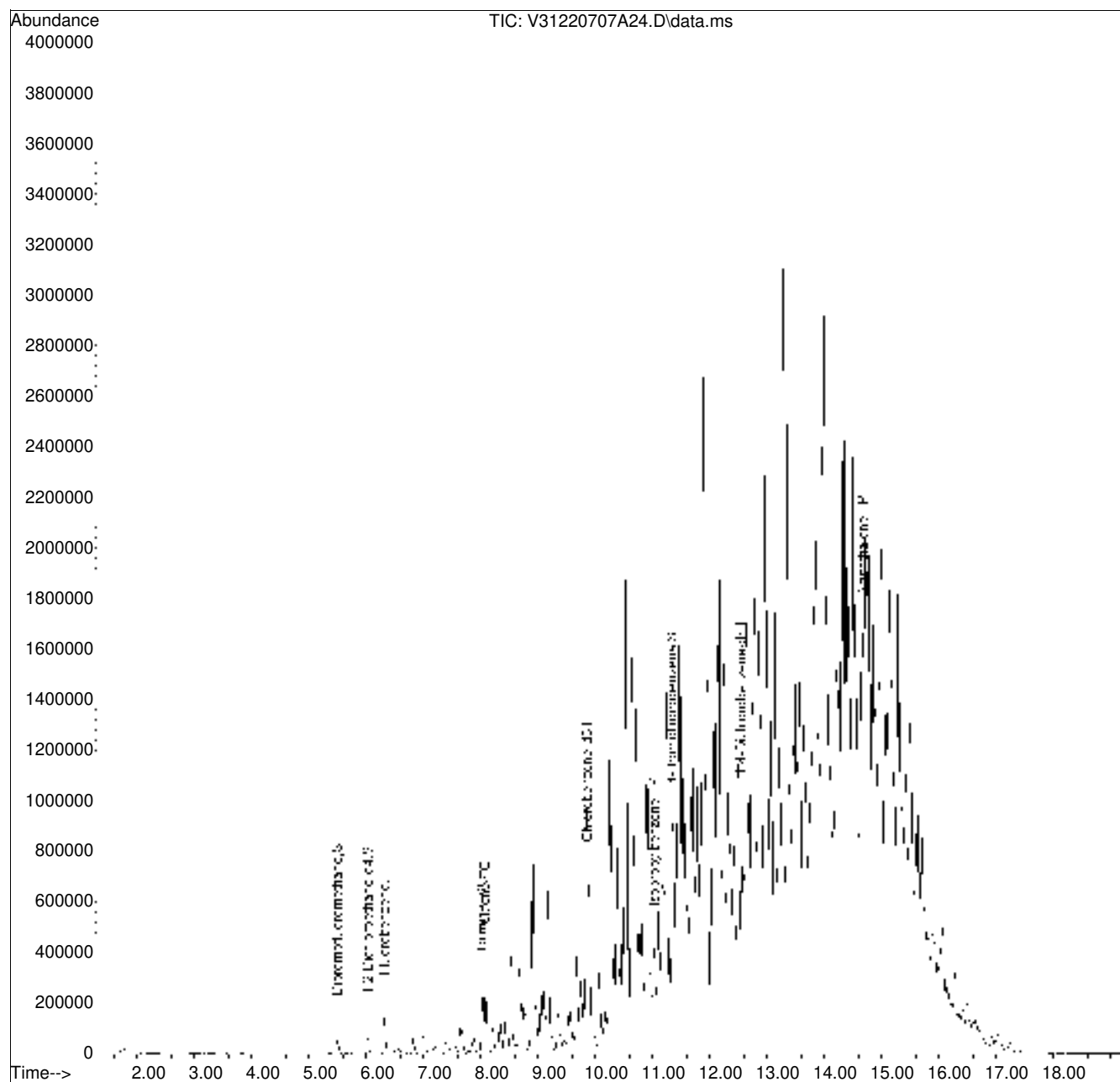
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707A\
 Data File : V31220707A24.D
 Acq On : 07 Jul 2022 04:58 pm
 Operator : VOA131:JC
 Sample : 12235694-17, 31h, 6.74, 5, 0.100,, a, r2f
 Misc : WG1660349, ICAL19050
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 05:59:20 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220707A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07A\V31220707A01.D•

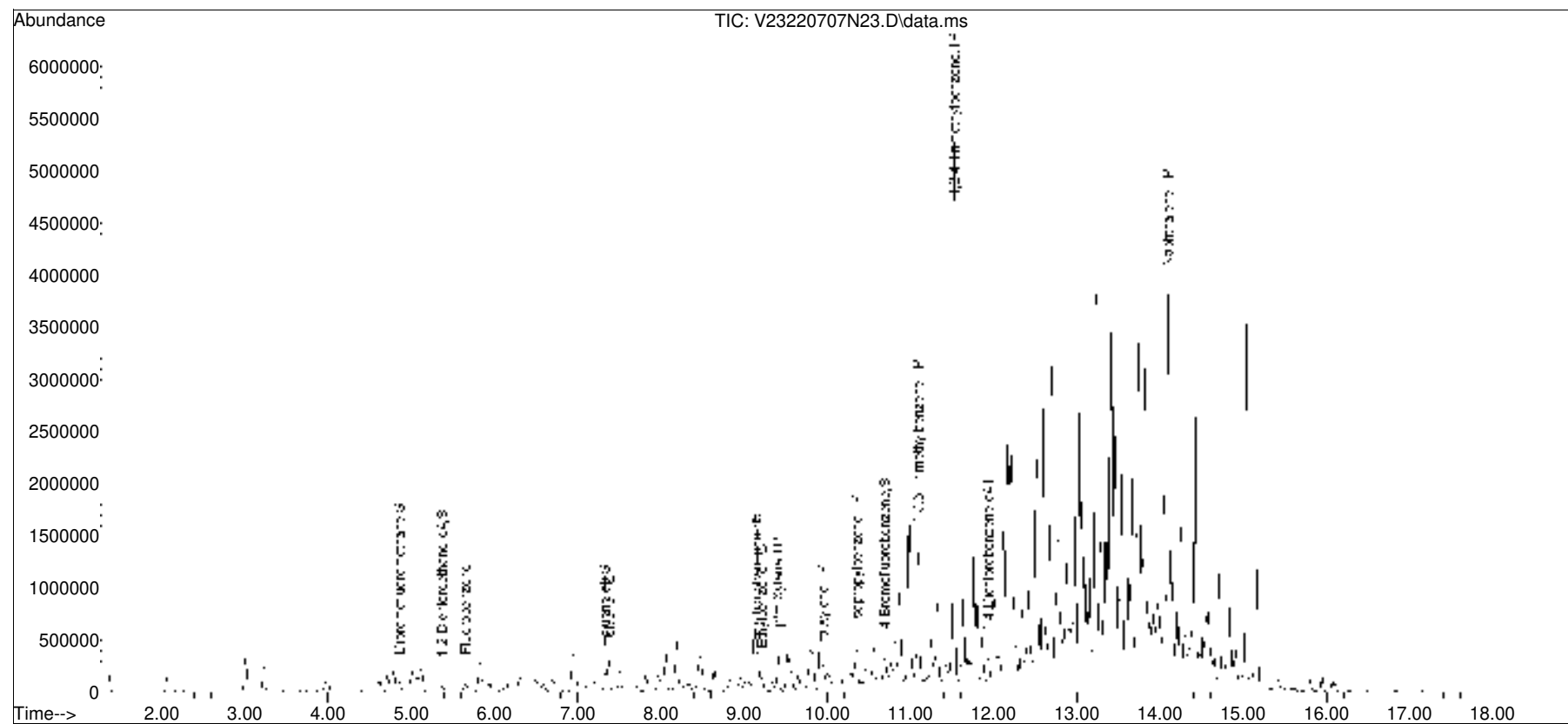


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220707N\
Data File : V23220707N23.D
Acq On : 08 Jul 2022 05:33 am
Operator : VOA123:MKS
Sample : 12235694-23, 31h, 6.57, 5, 0.100, , a, r2f
Misc : WG1660398, ICAL19133
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 08 06:51:52 2022
Quant Method : I:\VOLATILES\VOA123\2022\220707N\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V23220707N01.D•

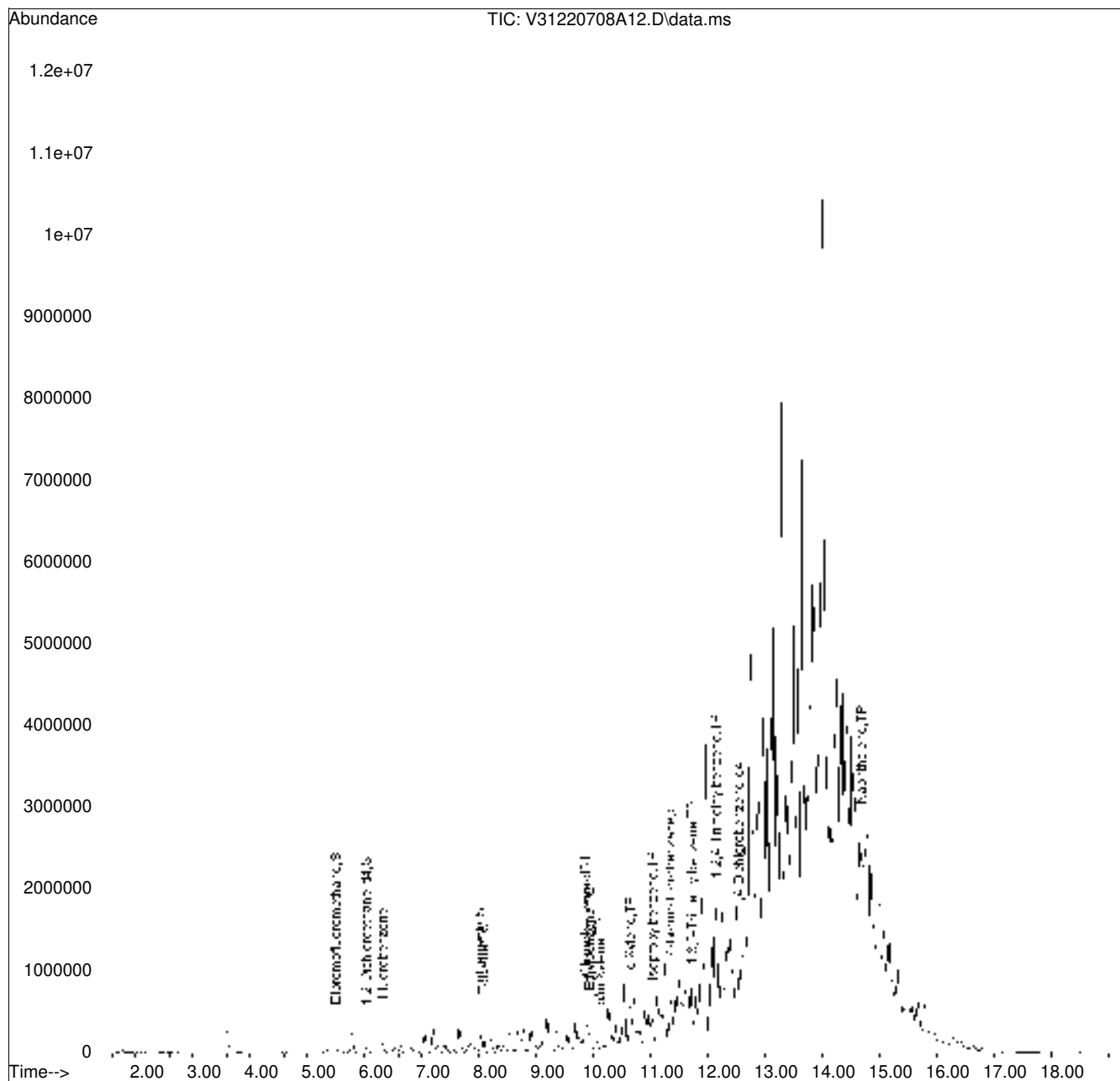


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A12.D
 Acq On : 08 Jul 2022 11:50 am
 Operator : VOA131:MKS
 Sample : 12235694-25,31,5.45,5,,c,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 08 12:23:51 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•





ANALYTICAL REPORT

Lab Number:	L2235695
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/11/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235695-01	PB-833-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 08:45	07/05/22
L2235695-02	PB-833-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 08:55	07/05/22
L2235695-03	PB-833-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:00	07/05/22
L2235695-04	PB-833-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:05	07/05/22
L2235695-05	PB-833-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:10	07/05/22
L2235695-06	PB-833-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:20	07/05/22
L2235695-07	PB-833-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:30	07/05/22
L2235695-08	PB-833-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:40	07/05/22
L2235695-09	PB-833-09-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:45	07/05/22
L2235695-10	PB-833-10-SS01	SOIL	PHILADELPHIA, PA	07/05/22 09:55	07/05/22
L2235695-11	PB-833-11-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:00	07/05/22
L2235695-12	PB-833-12-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:10	07/05/22
L2235695-13	PB-833-13-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:20	07/05/22
L2235695-14	PB-833-14-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:30	07/05/22
L2235695-15	PB-833-15-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:40	07/05/22
L2235695-16	PB-833-16-SS01	SOIL	PHILADELPHIA, PA	07/05/22 10:50	07/05/22
L2235695-17	PB-836-01-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:30	07/05/22
L2235695-18	PB-836-02-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:40	07/05/22
L2235695-19	PB-836-03-SS01	SOIL	PHILADELPHIA, PA	07/05/22 12:50	07/05/22
L2235695-20	PB-836-04-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:00	07/05/22
L2235695-21	PB-836-05-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:30	07/05/22
L2235695-22	PB-836-06-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:40	07/05/22
L2235695-23	PB-836-07-SS01	SOIL	PHILADELPHIA, PA	07/05/22 13:50	07/05/22
L2235695-24	PB-836-08-SS01	SOIL	PHILADELPHIA, PA	07/05/22 14:00	07/05/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235695-25	FB-070522-4	WATER	PHILADELPHIA, PA	07/05/22 14:10	07/05/22
L2235695-26	FB-070522-5	WATER	PHILADELPHIA, PA	07/05/22 14:20	07/05/22
L2235695-27	DUP-33	SOIL	PHILADELPHIA, PA	07/05/22 00:00	07/05/22
L2235695-28	TB-070522	WATER	PHILADELPHIA, PA	07/05/22 00:00	07/05/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Case Narrative (continued)

Report Submission

July 11, 2022: This final report includes the results of all requested analyses.

July 08, 2022: This is a preliminary report.

July 08, 2022: This is a preliminary report.

July 07, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235695-27: The Client ID was specified by the client.

Volatile Organics

L2235695-01: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235695-02: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (25%) and the surrogate recovery for 4-bromofluorobenzene (197%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. A high-level analysis was performed, and those results are also reported.

L2235695-13: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2235695-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (357%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235695-18: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (353%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

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Case Narrative (continued)

chromatogram is included as an attachment to this report.

L2235695-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (224%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235695-20: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2235695-21: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (178%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2235695-02D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Total Metals

The WG1659360-3 MS recovery, performed on L2235695-15, is outside the acceptance criteria for lead (0%). A post digestion spike was performed and yielded an unacceptable recovery for lead (58%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1659360-4 Laboratory Duplicate RPD for lead (107%), performed on L2235695-15, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1659360-6 serial dilution analysis, associated with L2235695-15, had a %D above the acceptance criteria for lead (39%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 07/11/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
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Lab Number: L2235695
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SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.060	J	mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.034	J	mg/kg	0.072	0.010	1
p/m-Xylene	0.094	J	mg/kg	0.14	0.040	1
o-Xylene	0.068	J	mg/kg	0.072	0.021	1
Xylenes, Total	0.16	J	mg/kg	0.072	0.021	1
Isopropylbenzene	0.068	J	mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.017	J	mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.054	J	mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	107		70-130

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SAMPLE RESULTS

Lab ID: L2235695-02
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:05
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.024	J	mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	0.049	J	mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.098		mg/kg	0.075	0.010	1
p/m-Xylene	0.19		mg/kg	0.15	0.042	1
o-Xylene	0.085		mg/kg	0.075	0.022	1
Xylenes, Total	0.28		mg/kg	0.075	0.022	1
Isopropylbenzene	0.014	J	mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.029	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
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Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:07
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.0018		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0062		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.019		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.030		mg/kg	0.0025	0.00070	1
o-Xylene	0.018		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.048		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.0066		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.0096		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.039		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	197	Q	70-130
Dibromofluoromethane	123		70-130

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SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:31
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00084	0.00021	1
Toluene	ND		mg/kg	0.00084	0.00045	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00024	1
Ethylbenzene	ND		mg/kg	0.00084	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00047	1
o-Xylene	ND		mg/kg	0.00084	0.00024	1
Xylenes, Total	ND		mg/kg	0.00084	0.00024	1
Isopropylbenzene	ND		mg/kg	0.00084	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

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Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:36
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130

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SAMPLE RESULTS

Lab ID: L2235695-05
 Client ID: PB-833-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:02
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06
 Client ID: PB-833-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:29
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07
 Client ID: PB-833-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:56
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:23
 Analyst: NLK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:50
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00074	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10
 Client ID: PB-833-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:16
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00088	0.00022	1
Toluene	ND		mg/kg	0.00088	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00049	1
o-Xylene	ND		mg/kg	0.00088	0.00026	1
Xylenes, Total	ND		mg/kg	0.00088	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:43
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12
 Client ID: PB-833-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:09
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 14:36
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	0.041		mg/kg	0.00095	0.00013	1
p/m-Xylene	0.23		mg/kg	0.0019	0.00053	1
o-Xylene	0.020		mg/kg	0.00095	0.00028	1
Xylenes, Total	0.25		mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.065		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.40	E	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	1.3	E	mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	357	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 09:31
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	ND		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.016	J	mg/kg	0.061	0.0087	1
p/m-Xylene	0.086	J	mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.061	0.018	1
Xylenes, Total	0.086	J	mg/kg	0.061	0.018	1
Isopropylbenzene	0.029	J	mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	0.26		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.68		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:02
 Analyst: MKS
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15
 Client ID: PB-833-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:29
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	ND		mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00087	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00049	1
o-Xylene	ND		mg/kg	0.00087	0.00025	1
Xylenes, Total	ND		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 01:50
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00041	1
Xylenes, Total	ND		mg/kg	0.0014	0.00041	1
Isopropylbenzene	0.00026	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-17
 Client ID: PB-836-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:23
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.00035	J	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0068		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00047	J	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-18
 Client ID: PB-836-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:33
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	0.00069	J	mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.0029		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0029		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	353	Q	70-130
Dibromofluoromethane	109		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-19
 Client ID: PB-836-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 09:54
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
Toluene	ND		mg/kg	0.0017	0.00092	1
Ethylbenzene	0.00085	J	mg/kg	0.0017	0.00024	1
Isopropylbenzene	0.17		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00063	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.0029	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	75		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	224	Q	70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:43
 Analyst: JC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	0.034	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	0.65		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.044	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00065	1
Ethylbenzene	0.00018	J	mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.012		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00042	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:17
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	0.00078		mg/kg	0.00073	0.00024	1
Toluene	0.0013	J	mg/kg	0.0015	0.00079	1
Ethylbenzene	0.0012	J	mg/kg	0.0015	0.00021	1
Isopropylbenzene	0.0054		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0026	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	76		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	178	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-22
 Client ID: PB-836-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:36
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00030	J	mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.00031	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23
 Client ID: PB-836-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 19:03
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00040	J	mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00092	0.00050	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
Isopropylbenzene	0.00016	J	mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-24
 Client ID: PB-836-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:33
 Analyst: LAC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00050	J	mg/kg	0.00062	0.00021	1
Toluene	ND		mg/kg	0.0012	0.00068	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
Isopropylbenzene	0.00020	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:10
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 14:45
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	130		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:17
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 14:21
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	129		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:00
 Analyst: LAC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-28
 Client ID: TB-070522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/07/22 10:24
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-28
 Client ID: TB-070522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/22 15:10
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	132	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/07/22 09:30
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 07/07/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-26,28 Batch: WG1659742-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/22 10:17
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-26,28 Batch: WG1659839-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	127		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 24,27 Batch: WG1660052-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03 Batch: WG1660066-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-15,17,22-23 Batch: WG1660068-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 20 Batch: WG1660421-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/08/22 09:05
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19-21 Batch: WG1660450-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:05
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13 Batch: WG1660454-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660464-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,18 Batch: WG1660468-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 08:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1660481-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1660939-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-26,28 Batch: WG1659742-2									
1,2-Dibromoethane	120		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-26,28 Batch: WG1659839-3 WG1659839-4								
Methyl tert butyl ether	86		86		63-130	0		20
Benzene	120		110		70-130	9		20
1,2-Dichloroethane	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		105		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	115		110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 24,27 Batch: WG1660052-3 WG1660052-4								
Methyl tert butyl ether	93		92		66-130	1		30
Benzene	97		96		70-130	1		30
Toluene	92		95		70-130	3		30
Ethylbenzene	94		95		70-130	1		30
Isopropylbenzene	102		104		70-130	2		30
1,3,5-Trimethylbenzene	100		102		70-130	2		30
1,2,4-Trimethylbenzene	99		101		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		98		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	110		110		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03 Batch: WG1660066-3 WG1660066-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-15,17,22-23 Batch: WG1660068-3 WG1660068-4								
Methyl tert butyl ether	80		77		66-130	4		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		86		70-130	2		30
Toluene	89		88		70-130	1		30
1,2-Dibromoethane	93		90		70-130	3		30
Ethylbenzene	89		88		70-130	1		30
p/m-Xylene	93		92		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	91		89		70-130	2		30
1,3,5-Trimethylbenzene	91		89		70-130	2		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	103		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 20 Batch: WG1660421-3 WG1660421-4								
Methyl tert butyl ether	80		77		66-130	4		30
Benzene	89		88		70-130	1		30
Toluene	89		88		70-130	1		30
Ethylbenzene	89		88		70-130	1		30
Isopropylbenzene	91		89		70-130	2		30
1,3,5-Trimethylbenzene	91		89		70-130	2		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	102		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19-21 Batch: WG1660450-3 WG1660450-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
Toluene	86		87		70-130	1		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13 Batch: WG1660454-3 WG1660454-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	87		88		70-130	1		30
1,2-Dichloroethane	70		68	Q	70-130	3		30
Toluene	86		87		70-130	1		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	90		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		77		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660464-3 WG1660464-4								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	99		95		70-130	4		30
1,2-Dichloroethane	102		99		70-130	3		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	98		95		70-130	3		30
Ethylbenzene	96		92		70-130	4		30
p/m-Xylene	93		90		70-130	3		30
o-Xylene	92		90		70-130	2		30
Isopropylbenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	100		96		70-130	4		30
1,2,4-Trimethylbenzene	98		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	106		110		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,18 Batch: WG1660468-3 WG1660468-4								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	99		95		70-130	4		30
1,2-Dichloroethane	102		99		70-130	3		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	98		95		70-130	3		30
Ethylbenzene	96		92		70-130	4		30
p/m-Xylene	93		90		70-130	3		30
o-Xylene	92		90		70-130	2		30
Isopropylbenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	100		96		70-130	4		30
1,2,4-Trimethylbenzene	98		96		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	106		110		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1660481-3 WG1660481-4								
Methyl tert butyl ether	89		91		66-130	2		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	71		70		70-130	1		30
Toluene	90		89		70-130	1		30
1,2-Dibromoethane	81		83		70-130	2		30
Ethylbenzene	90		87		70-130	3		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	88		77		70-130	13		30
Isopropylbenzene	101		81		70-130	22		30
1,3,5-Trimethylbenzene	91		84		70-130	8		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	99		92		70-130
Dibromofluoromethane	83		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1660939-3 WG1660939-4								
Methyl tert butyl ether	86		91		66-130	6		30
Benzene	85		88		70-130	3		30
1,2-Dichloroethane	67	Q	72		70-130	7		30
Toluene	82		87		70-130	6		30
1,2-Dibromoethane	88		97		70-130	10		30
Ethylbenzene	81		87		70-130	7		30
p/m-Xylene	84		90		70-130	7		30
o-Xylene	85		91		70-130	7		30
Isopropylbenzene	81		90		70-130	11		30
1,3,5-Trimethylbenzene	81		88		70-130	8		30
1,2,4-Trimethylbenzene	82		91		70-130	10		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130

SEMIVOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:13
 Analyst: IM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.022	J	mg/kg	0.18	0.022	1
Fluorene	0.061	J	mg/kg	0.18	0.018	1
Phenanthrene	0.079	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.018	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	48		30-120
4-Terphenyl-d14	43		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02 D
 Client ID: PB-833-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 15:25
 Analyst: WR
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.16	J	mg/kg	0.93	0.11	5
Fluorene	ND		mg/kg	0.93	0.090	5
Phenanthrene	1.2		mg/kg	0.56	0.11	5
Anthracene	0.76		mg/kg	0.56	0.18	5
Pyrene	1.2		mg/kg	0.56	0.092	5
Benzo(a)anthracene	0.16	J	mg/kg	0.56	0.10	5
Chrysene	0.40	J	mg/kg	0.56	0.096	5
Benzo(b)fluoranthene	0.18	J	mg/kg	0.56	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.74	0.23	5
Benzo(ghi)perylene	0.12	J	mg/kg	0.74	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:03
 Analyst: IM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:16
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05
 Client ID: PB-833-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 01:38
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	76		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06
 Client ID: PB-833-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:23
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	64		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07
 Client ID: PB-833-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:01
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.031	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:22
 Analyst: ALS
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.038	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.029	J	mg/kg	0.11	0.020	1
Chrysene	0.028	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.045	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.024	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	62		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:31
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10
 Client ID: PB-833-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:55
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:38
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:14
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12
 Client ID: PB-833-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:30
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 04:15
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.085	J	mg/kg	0.19	0.018	1
Phenanthrene	0.16		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:07
 Analyst: ALS
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	81		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15
 Client ID: PB-833-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:45
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	92		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 05:00
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	98		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-17
 Client ID: PB-836-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:59
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.18	0.022	1
Fluorene	0.75		mg/kg	0.18	0.018	1
Phenanthrene	1.2		mg/kg	0.11	0.022	1
Anthracene	0.24		mg/kg	0.11	0.036	1
Pyrene	0.54		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.26		mg/kg	0.11	0.021	1
Chrysene	0.27		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.43		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.40		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.28		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	104		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-18
 Client ID: PB-836-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 08:22
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.056	J	mg/kg	0.20	0.024	1
Fluorene	0.058	J	mg/kg	0.20	0.019	1
Phenanthrene	0.37		mg/kg	0.12	0.024	1
Anthracene	0.11	J	mg/kg	0.12	0.039	1
Pyrene	0.33		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.21		mg/kg	0.12	0.022	1
Chrysene	0.20		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.22		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.20		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	94		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-19
 Client ID: PB-836-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 12:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 07:37
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037	J	mg/kg	0.20	0.024	1
Fluorene	0.030	J	mg/kg	0.20	0.019	1
Phenanthrene	0.070	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	0.10	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.061	J	mg/kg	0.12	0.022	1
Chrysene	0.066	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.086	J	mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.076	J	mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.068	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-20
 Client ID: PB-836-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:38
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 14:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.19	0.024	1
Fluorene	0.76		mg/kg	0.19	0.019	1
Phenanthrene	5.6		mg/kg	0.12	0.023	1
Anthracene	1.2		mg/kg	0.12	0.038	1
Pyrene	7.4		mg/kg	0.12	0.019	1
Benzo(a)anthracene	2.2		mg/kg	0.12	0.022	1
Chrysene	2.2		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	2.9		mg/kg	0.12	0.032	1
Benzo(a)pyrene	3.2		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	2.4		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:52
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.029	J	mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.056	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.057	J	mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.038	J	mg/kg	0.11	0.021	1
Chrysene	0.041	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.047	J	mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.025	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-22
 Client ID: PB-836-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 06:30
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.079	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.14		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.096	J	mg/kg	0.11	0.021	1
Chrysene	0.10	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.15		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.12	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.070	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23
 Client ID: PB-836-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 00:53
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-24
 Client ID: PB-836-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 02:45
 Analyst: ALS
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25
 Client ID: FB-070522-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:10
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 10:01
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.01	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	87		15-120
4-Terphenyl-d14	84		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26
 Client ID: FB-070522-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 14:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/07/22 10:18
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.02	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	91		15-120
4-Terphenyl-d14	101		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 03:08
 Analyst: ALS
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	92		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 21:52
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/06/22 07:54

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-19 Batch: WG1659272-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	97		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 23:24
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 09:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-24,27 Batch: WG1659273-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	102		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 23:09
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 20 Batch: WG1659873-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	99		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/07/22 08:23
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/06/22 08:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-26 Batch: WG1660007-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	94		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-19 Batch: WG1659272-2 WG1659272-3								
Naphthalene	59		56		40-140	5		50
Fluorene	63		60		40-140	5		50
Phenanthrene	60		57		40-140	5		50
Anthracene	61		58		40-140	5		50
Pyrene	60		57		35-142	5		50
Benzo(a)anthracene	66		62		40-140	6		50
Chrysene	65		61		40-140	6		50
Benzo(b)fluoranthene	69		64		40-140	8		50
Benzo(a)pyrene	71		66		40-140	7		50
Benzo(ghi)perylene	62		58		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	115		105		23-120
2-Fluorobiphenyl	59		55		30-120
4-Terphenyl-d14	66		62		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-24,27 Batch: WG1659273-2 WG1659273-3								
Naphthalene	80		82		40-140	2		50
Fluorene	95		99		40-140	4		50
Phenanthrene	84		86		40-140	2		50
Anthracene	89		92		40-140	3		50
Pyrene	92		94		35-142	2		50
Benzo(a)anthracene	99		102		40-140	3		50
Chrysene	97		98		40-140	1		50
Benzo(b)fluoranthene	110		113		40-140	3		50
Benzo(a)pyrene	114		115		40-140	1		50
Benzo(ghi)perylene	93		95		40-140	2		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	76		76		23-120
2-Fluorobiphenyl	90		92		30-120
4-Terphenyl-d14	105		109		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 20 Batch: WG1659873-2 WG1659873-3								
Naphthalene	94		85		40-140	10		50
Fluorene	108		98		40-140	10		50
Phenanthrene	95		85		40-140	11		50
Anthracene	101		91		40-140	10		50
Pyrene	103		93		35-142	10		50
Benzo(a)anthracene	111		102		40-140	8		50
Chrysene	109		99		40-140	10		50
Benzo(b)fluoranthene	121		115		40-140	5		50
Benzo(a)pyrene	124		114		40-140	8		50
Benzo(ghi)perylene	104		95		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	92		82		23-120
2-Fluorobiphenyl	105		97		30-120
4-Terphenyl-d14	118		107		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-26 Batch: WG1660007-2 WG1660007-3								
Naphthalene	81		87		40-140	7		40
Fluorene	86		89		40-140	3		40
Phenanthrene	85		87		40-140	2		40
Anthracene	87		87		40-140	0		40
Pyrene	89		91		26-127	2		40
Benzo(a)anthracene	86		87		40-140	1		40
Chrysene	82		87		40-140	6		40
Benzo(b)fluoranthene	90		86		40-140	5		40
Benzo(a)pyrene	85		86		40-140	1		40
Benzo(ghi)perylene	89		95		40-140	7		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	72		85		15-120
4-Terphenyl-d14	87		91		41-149

METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	24.1		mg/kg	2.06	0.110	1	07/06/22 12:10	07/07/22 09:00	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-02

Date Collected: 07/05/22 08:55

Client ID: PB-833-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	278		mg/kg	2.12	0.114	1	07/06/22 12:10	07/07/22 09:05	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03

Date Collected: 07/05/22 09:00

Client ID: PB-833-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	29.0		mg/kg	2.23	0.119	1	07/06/22 12:10	07/07/22 09:09	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04

Date Collected: 07/05/22 09:05

Client ID: PB-833-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.95		mg/kg	2.22	0.119	1	07/06/22 12:10	07/07/22 09:14	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05

Date Collected: 07/05/22 09:10

Client ID: PB-833-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.16		mg/kg	2.14	0.115	1	07/06/22 12:10	07/07/22 09:18	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-06

Date Collected: 07/05/22 09:20

Client ID: PB-833-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.48		mg/kg	2.34	0.126	1	07/06/22 12:10	07/07/22 09:23	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-07
 Client ID: PB-833-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	16.9		mg/kg	2.24	0.120	1	07/06/22 12:10	07/07/22 09:27	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08

Date Collected: 07/05/22 09:40

Client ID: PB-833-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	121		mg/kg	10.7	0.575	5	07/06/22 12:10	07/07/22 16:48	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09

Date Collected: 07/05/22 09:45

Client ID: PB-833-09-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	31.7		mg/kg	2.20	0.118	1	07/06/22 12:10	07/07/22 10:47	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-10

Date Collected: 07/05/22 09:55

Client ID: PB-833-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	69.3		mg/kg	4.47	0.240	2	07/06/22 12:10	07/07/22 11:51	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11

Date Collected: 07/05/22 10:00

Client ID: PB-833-11-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	128		mg/kg	2.20	0.118	1	07/06/22 12:10	07/07/22 10:56	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-12

Date Collected: 07/05/22 10:10

Client ID: PB-833-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	41.6		mg/kg	2.22	0.119	1	07/06/22 12:10	07/07/22 11:00	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.72		mg/kg	2.24	0.120	1	07/06/22 12:10	07/07/22 11:05	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14

Date Collected: 07/05/22 10:30

Client ID: PB-833-14-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.59		mg/kg	2.19	0.117	1	07/06/22 12:10	07/07/22 11:10	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-15

Date Collected: 07/05/22 10:40

Client ID: PB-833-15-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	127		mg/kg	2.20	0.118	1	07/06/22 12:30	07/07/22 07:39	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-16
 Client ID: PB-833-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:50
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	123		mg/kg	2.13	0.114	1	07/06/22 12:30	07/07/22 08:01	EPA 3050B	1,6010D	EW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-25

Date Collected: 07/05/22 14:10

Client ID: FB-070522-4

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 01:04	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-26

Date Collected: 07/05/22 14:20

Client ID: FB-070522-5

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/06/22 14:45	07/07/22 01:10	EPA 3005A	1,6020B	WP



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-14 Batch: WG1659355-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:10	07/07/22 07:28	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15-16 Batch: WG1659360-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/06/22 12:30	07/07/22 07:30	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst	
Total Metals - Mansfield Lab for sample(s): 25-26 Batch: WG1659419-1										
Lead, Total	0.6563	J	ug/l	1.000	0.3430	1	07/06/22 14:45	07/06/22 22:40	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 Batch: WG1659355-2 SRM Lot Number: D113-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 15-16 Batch: WG1659360-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 25-26 Batch: WG1659419-2								
Lead, Total	101		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1659355-3 QC Sample: L2235694-21 Client ID: MS Sample												
Lead, Total	8.80	49.7	38.6	60	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-3 QC Sample: L2235695-15 Client ID: PB-833-15-SS01												
Lead, Total	127	46.8	46.0	0	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 25-26 QC Batch ID: WG1659419-3 QC Sample: L2234348-01 Client ID: MS Sample												
Lead, Total	21.56	530	573.0	104		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1659355-4 QC Sample: L2235694-21 Client ID: DUP Sample						
Lead, Total	8.80	9.39	mg/kg	6		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-4 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Lead, Total	127	38.4	mg/kg	107	Q	20
Total Metals - Mansfield Lab Associated sample(s): 25-26 QC Batch ID: WG1659419-4 QC Sample: L2234348-01 Client ID: DUP Sample						
Lead, Total	21.56	21.45	ug/l	1		20

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1659360-6 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Lead, Total	127	177	mg/kg	39	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-01
 Client ID: PB-833-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 08:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-02

Date Collected: 07/05/22 08:55

Client ID: PB-833-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-03
 Client ID: PB-833-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-04
 Client ID: PB-833-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:05
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-05

Date Collected: 07/05/22 09:10

Client ID: PB-833-05-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-06

Date Collected: 07/05/22 09:20

Client ID: PB-833-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-07

Date Collected: 07/05/22 09:30

Client ID: PB-833-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-08
 Client ID: PB-833-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:40
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-09
 Client ID: PB-833-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 09:45
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-10

Date Collected: 07/05/22 09:55

Client ID: PB-833-10-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-11
 Client ID: PB-833-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.5		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-12

Date Collected: 07/05/22 10:10

Client ID: PB-833-12-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-13
 Client ID: PB-833-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:20
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-14
 Client ID: PB-833-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.6		%	0.100	NA	1	-	07/06/22 07:40	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235695**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-15

Client ID: PB-833-15-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 10:40

Date Received: 07/05/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-16

Date Collected: 07/05/22 10:50

Client ID: PB-833-16-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-17

Date Collected: 07/05/22 12:30

Client ID: PB-836-01-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-18

Date Collected: 07/05/22 12:40

Client ID: PB-836-02-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-19

Date Collected: 07/05/22 12:50

Client ID: PB-836-03-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-20

Date Collected: 07/05/22 13:00

Client ID: PB-836-04-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-21
 Client ID: PB-836-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 13:30
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-22

Date Collected: 07/05/22 13:40

Client ID: PB-836-06-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235695

Project Number: 200.00135.006

Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-23

Date Collected: 07/05/22 13:50

Client ID: PB-836-07-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**SAMPLE RESULTS**

Lab ID: L2235695-24

Date Collected: 07/05/22 14:00

Client ID: PB-836-08-SS01

Date Received: 07/05/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

SAMPLE RESULTS

Lab ID: L2235695-27
 Client ID: DUP-33
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/05/22 00:00
 Date Received: 07/05/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	07/06/22 07:54	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235695

Report Date: 07/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1659225-1 QC Sample: L2235695-01 Client ID: PB-833-01-SS01						
Solids, Total	91.0	91.8	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 15-24,27 QC Batch ID: WG1659226-1 QC Sample: L2235695-15 Client ID: PB-833-15-SS01						
Solids, Total	88.6	89.5	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
D	Absent
F	Absent
G	Absent
H	Absent
I	Absent
J	Absent
K	Absent
L	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-01A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-01B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-01C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 16:26	PA-8260HLW(14)
L2235695-01D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-01E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-01F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-02A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-02B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-02C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-02D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-02E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-02F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-03A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-03B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-03C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-03D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-03E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-03F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-04A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-04B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-04C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-04D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-04E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-04F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-05A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)
L2235695-05B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-05C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-05D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-05E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-05F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-06A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235695-06B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-06C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-06D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235695-06E	Metals Only-Glass 60mL/2oz unpreserved	L	NA		2.4	Y	Absent		PB-TI(180)
L2235695-06F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235695-07A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-07B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-07C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-07D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-07E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-07F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-08A	Vial MeOH preserved	K	NA		2.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-08B	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-08C	Vial water preserved	K	NA		2.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-08D	Plastic 120ml unpreserved	K	NA		2.2	Y	Absent		TS(7)
L2235695-08E	Metals Only-Glass 60mL/2oz unpreserved	K	NA		2.2	Y	Absent		PB-TI(180)
L2235695-08F	Glass 120ml/4oz unpreserved	K	NA		2.2	Y	Absent		PA-PAH(14)
L2235695-09A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-09B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-09C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-09D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-09E	Metals Only-Glass 60mL/2oz unpreserved	H	NA		3.8	Y	Absent		PB-TI(180)
L2235695-09F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-10A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-10B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-10C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-10D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-10E	Metals Only-Glass 60mL/2oz unpreserved	I	NA		3.5	Y	Absent		PB-TI(180)
L2235695-10F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-11A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235695-11B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-11C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-11D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235695-11E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)
L2235695-11F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235695-12A	Vial MeOH preserved	F	NA		3.4	Y	Absent		PA-8260HLW(14)
L2235695-12B	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-12C	Vial water preserved	F	NA		3.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-12D	Plastic 120ml unpreserved	F	NA		3.4	Y	Absent		TS(7)
L2235695-12E	Metals Only-Glass 60mL/2oz unpreserved	F	NA		3.4	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-12F	Glass 120ml/4oz unpreserved	F	NA		3.4	Y	Absent		PA-PAH(14)
L2235695-13A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-13B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-13C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-13D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-13E	Metals Only-Glass 60mL/2oz unpreserved	G	NA		3.9	Y	Absent		PB-TI(180)
L2235695-13F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-14A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-14B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-14C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-14D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-14E	Metals Only-Glass 60mL/2oz unpreserved	G	NA		3.9	Y	Absent		PB-TI(180)
L2235695-14F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-15A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235695-15B	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-15C	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-15D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235695-15E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		4.2	Y	Absent		PB-TI(180)
L2235695-15F	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235695-16A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235695-16B	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-16C	Vial water preserved	D	NA		4.2	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-16D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235695-16E	Metals Only-Glass 60mL/2oz unpreserved	D	NA		4.2	Y	Absent		PB-TI(180)
L2235695-16F	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235695-17A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-17B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-17C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-17D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-17F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-18A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-18B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-18C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-18D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-18F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-19A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-19B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-19C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-19D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-19F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-20A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2235695-20B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-20C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260H(14),PA-8260HLW(14)
L2235695-20D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-20F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-21A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)
L2235695-21B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-21C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-21D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-21F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-22A	Vial MeOH preserved	H	NA		3.8	Y	Absent		PA-8260HLW(14)
L2235695-22B	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-22C	Vial water preserved	H	NA		3.8	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-22D	Plastic 120ml unpreserved	H	NA		3.8	Y	Absent		TS(7)
L2235695-22F	Glass 120ml/4oz unpreserved	H	NA		3.8	Y	Absent		PA-PAH(14)
L2235695-23A	Vial MeOH preserved	G	NA		3.9	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235695**Project Number:** 200.00135.006**Report Date:** 07/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235695-23B	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-23C	Vial water preserved	G	NA		3.9	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-23D	Plastic 120ml unpreserved	G	NA		3.9	Y	Absent		TS(7)
L2235695-23F	Glass 120ml/4oz unpreserved	G	NA		3.9	Y	Absent		PA-PAH(14)
L2235695-24A	Vial MeOH preserved	I	NA		3.5	Y	Absent		PA-8260HLW(14)
L2235695-24B	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-24C	Vial water preserved	I	NA		3.5	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-24D	Plastic 120ml unpreserved	I	NA		3.5	Y	Absent		TS(7)
L2235695-24F	Glass 120ml/4oz unpreserved	I	NA		3.5	Y	Absent		PA-PAH(14)
L2235695-25A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-25B	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-25C	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)
L2235695-25G	Plastic 250ml HNO3 preserved	D	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2235695-25H	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-25J	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-26A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-26B	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-26C	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)
L2235695-26G	Metals Only-Glass 60mL/2oz unpreserved	D	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2235695-26H	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-26J	Amber 250ml unpreserved	D	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2235695-27A	Vial MeOH preserved	L	NA		2.4	Y	Absent		PA-8260HLW(14)
L2235695-27B	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-27C	Vial water preserved	L	NA		2.4	Y	Absent	06-JUL-22 07:02	PA-8260HLW(14)
L2235695-27D	Plastic 120ml unpreserved	L	NA		2.4	Y	Absent		TS(7)
L2235695-27F	Glass 120ml/4oz unpreserved	L	NA		2.4	Y	Absent		PA-PAH(14)
L2235695-28A	Vial HCl preserved	D	NA		4.2	Y	Absent		PA-8260(14)
L2235695-28B	Vial HCl preserved	D	NA		4.2	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Serial_No:07112211:03

Lab Number: L2235695

Report Date: 07/11/22

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235695
Report Date: 07/11/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18590

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
2-DAY
 Due Date: _____ Time: _____

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974
 Fax: _____
 Email: William.Schmidt@ransomenv.com
 These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hlcoglobal.com

Date Rec'd in Lab: 7/6/22 ALPHA Job #: L2235695

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client info PO #: 3562
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits
 State/Ref Program: _____ Criteria: _____

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5	ANALYSIS										SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES						
		Date	Time				1	2	3	4	5	6	7	8	9	10								
35695-01	PB-953-01-SS01	7/5	0845	S	TS	✓																		
-02	PB-833-02-SS01		0855			✓																		
-03	PB-833-03-SS01		0900			✓																		
-04	PB-833-04-SS01		0905			✓																		
-05	PB-833-05-SS01		0910			✓																		
-06	PB-833-06-SS01		0920			✓																		
-07	PB-833-07-SS01		0930			✓																		
-08	PB-833-08-SS01		0940			✓																		
-09	PB-833-09-SS01		0945			✓																		
-10	PB-833-10-SS01		0955			✓																		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35695-01	PB-953-01-SS01	7/5	0845	S	TS
-02	PB-833-02-SS01		0855		
-03	PB-833-03-SS01		0900		
-04	PB-833-04-SS01		0905		
-05	PB-833-05-SS01		0910		
-06	PB-833-06-SS01		0920		
-07	PB-833-07-SS01		0930		
-08	PB-833-08-SS01		0940		
-09	PB-833-09-SS01		0945		
-10	PB-833-10-SS01		0955		

Container Type: _____ Preservative: _____

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/5/22 1615	<i>[Signature]</i>	7/5/22 1615
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1800
<i>[Signature]</i>	7/5-2200	<i>[Signature]</i>	7/5/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

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Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
2-DAY
 Due Date: _____ Time: _____

Westborough, MA
 TEL: 508-898-9229
 FAX: 508-898-9193

Mansfield, MA
 TEL: 508-832-5300
 FAX: 508-832-3288

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974
 Fax: _____
 Email: William.Schmidt@ransomenv.com
 These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hfcglobal.com

Date Rec'd in Lab: **7/16/22**

ALPHA Job #: **L2235695**

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3582

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5	PADEP Shortlist 3-5										
35695-11	PB-833-11-5501	7/5	1000	S	TS	✓	✓										
-12	PB-833-12-5501		1010			✓	✓										
-13	PB-833-13-5501		1020			✓	✓										
-14	PB-833-14-5501		1030			✓	✓										
-15	PB-833-15-5501		1040			✓	✓										
-16	PB-833-16-5501		1050			✓	✓										
-17	PB-836-01-5501		1230			✓	✓										
-18	PB-836-02-5501		1240			✓	✓										
-19	PB-836-03-5501		1250			✓	✓										
-20	PB-836-04-5501		1300			✓	✓										

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1815
<i>[Signature]</i>	7/5/22 1715	<i>[Signature]</i>	7/5/22 1815
<i>[Signature]</i>	7/5/22 2100	<i>[Signature]</i>	7/5/22 2200

Please print clearly, legibly and completely. Samples can not be logged in and forwarded (time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

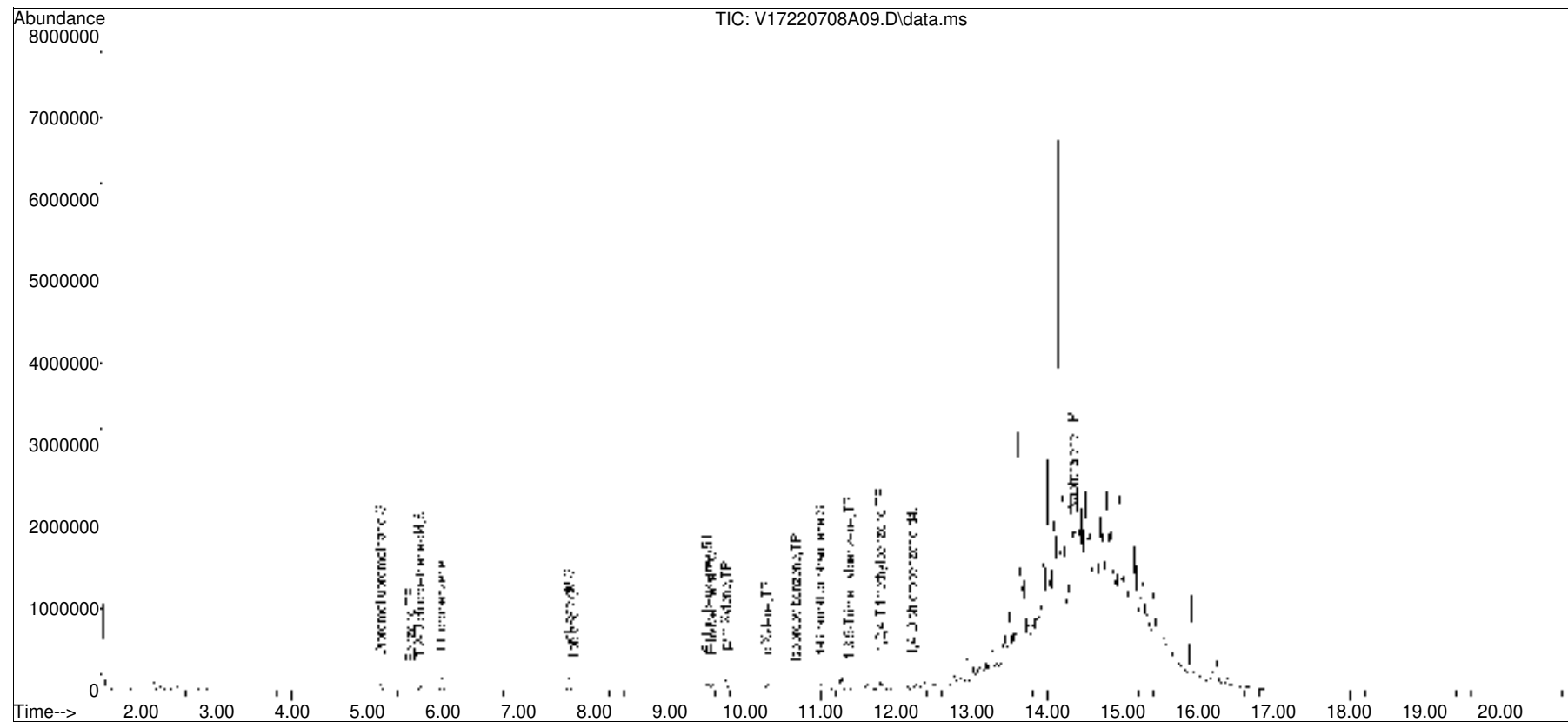
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220708A\
Data File : V17220708A09.D
Acq On : 08 Jul 2022 11:07 am
Operator : VOA117:MKS
Sample : 12235695-02,31,4.46,5,,b,r2f
Misc : WG1660468,ICAL19049
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 08 12:41:55 2022
Quant Method : I:\VOLATILES\VOA117\2022\220708A\V117_220526N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri May 27 14:20:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V17220708A02.D•

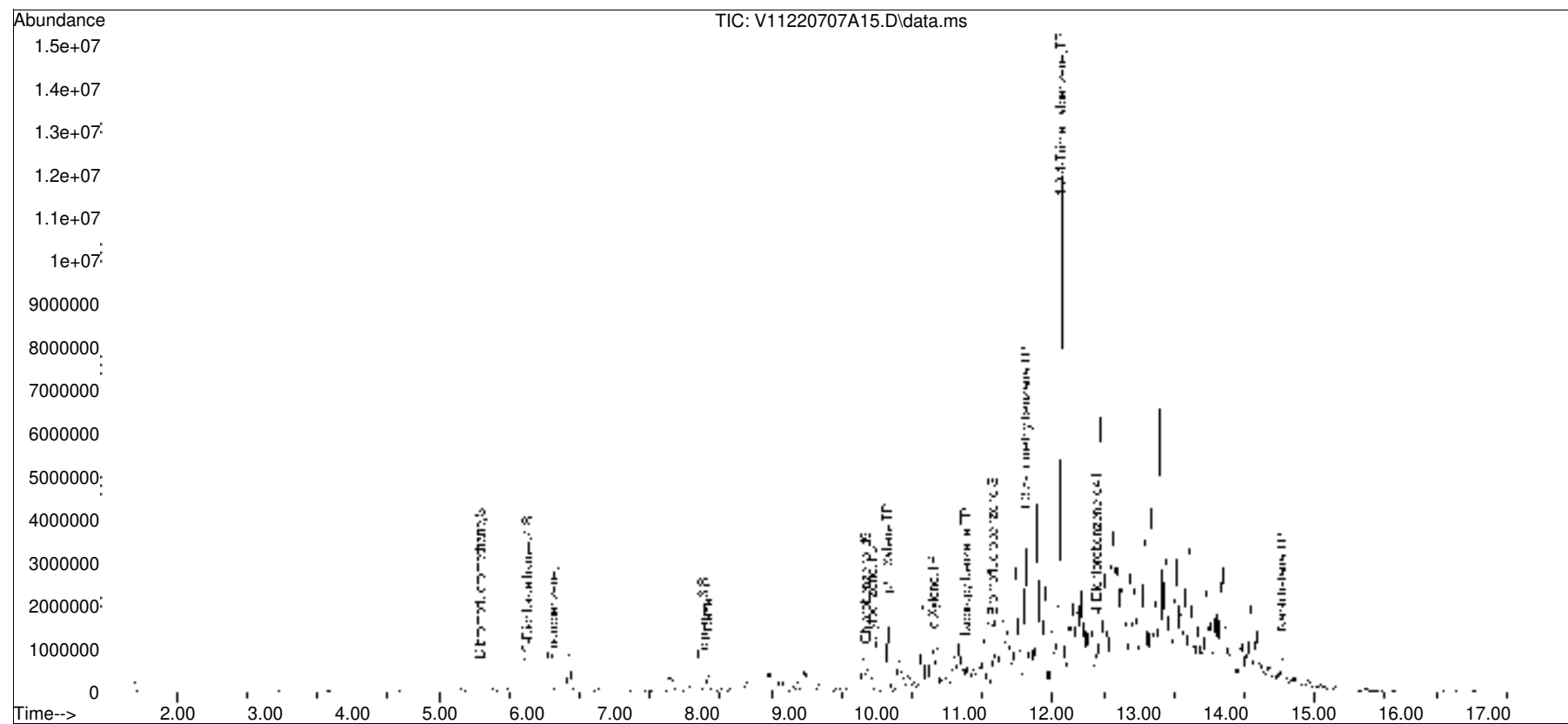


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220707A\
 Data File : V11220707A15.D
 Acq On : 07 Jul 2022 02:36 pm
 Operator : VOA111:MKS
 Sample : L2235695-13,31,6.05,5,,C,R2F
 Misc : WG1660068,ICAL19072
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 07 15:02:14 2022
 Quant Method : I:\VOLATILES\VOA111\2022\220707A\V111_220608A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Jun 09 10:30:20 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07A\V11220707A01.D•

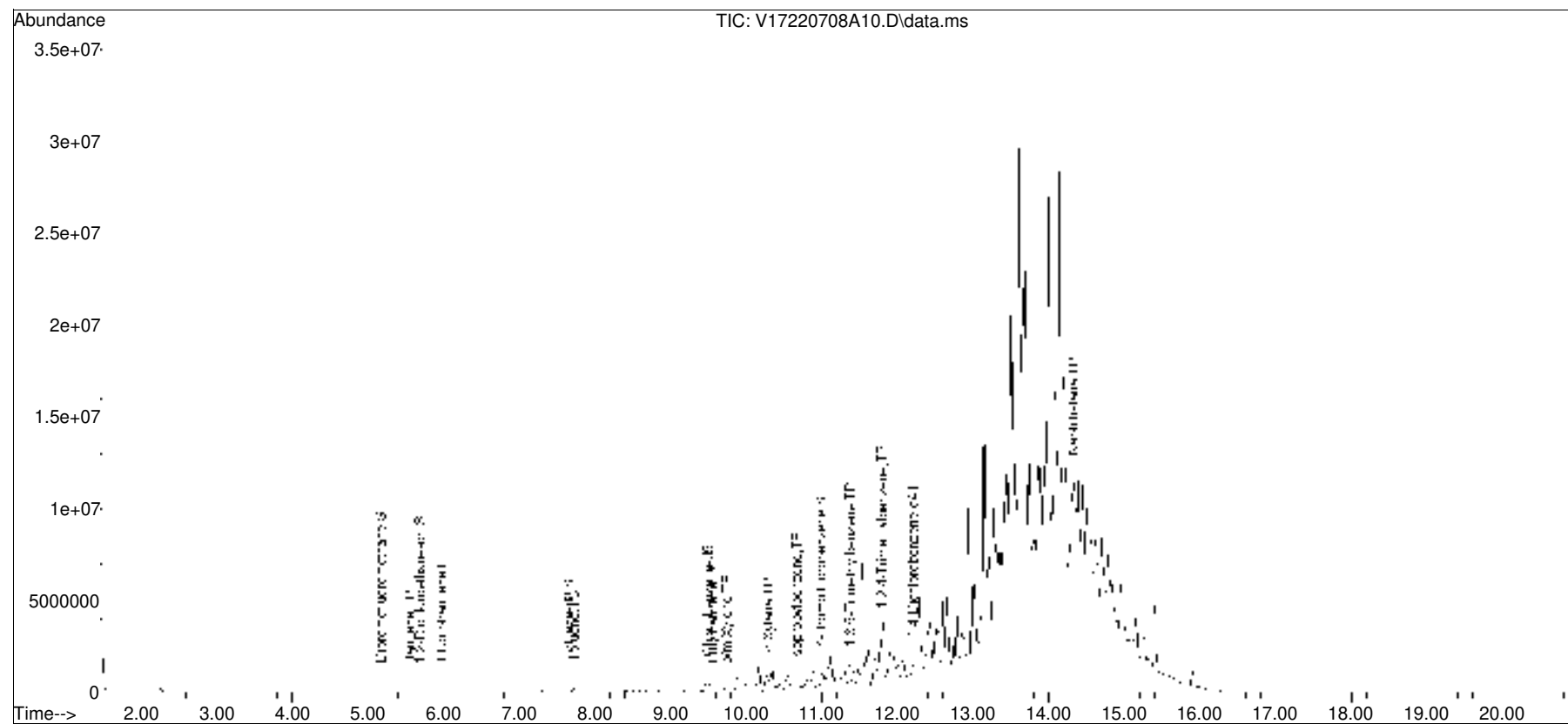


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220708A\
 Data File : V17220708A10.D
 Acq On : 08 Jul 2022 11:33 am
 Operator : VOA117:MKS
 Sample : 12235695-18,31,5.56,5,,c,r2f
 Misc : WG1660468,ICAL19049
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 08 12:41:59 2022
 Quant Method : I:\VOLATILES\VOA117\2022\220708A\V117_220526N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Fri May 27 14:20:04 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V17220708A02.D•

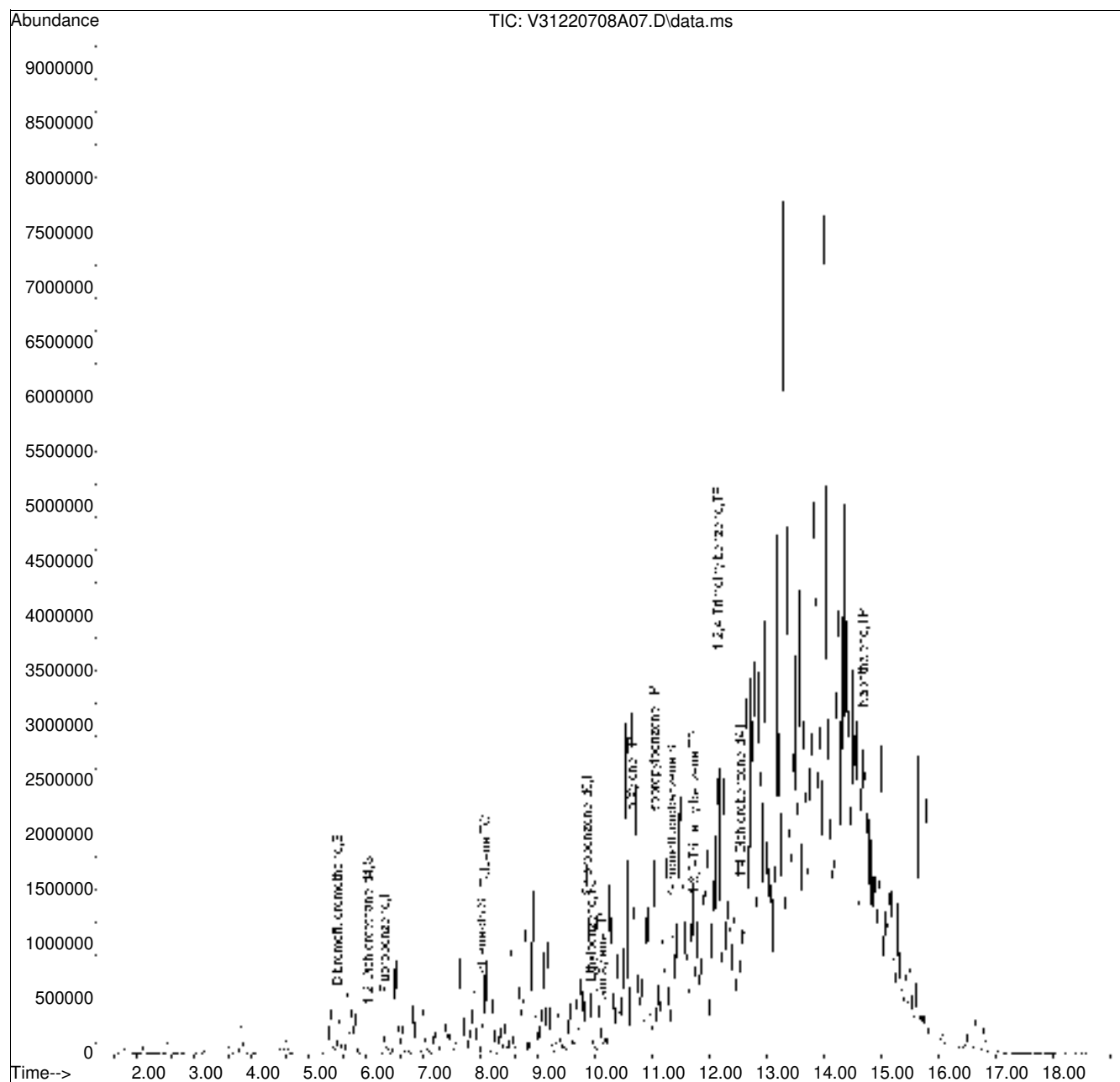


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A07.D
 Acq On : 08 Jul 2022 09:54 am
 Operator : VOA131:MKS
 Sample : 12235695-19,31,3.55,5,,b,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 08 12:22:59 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•

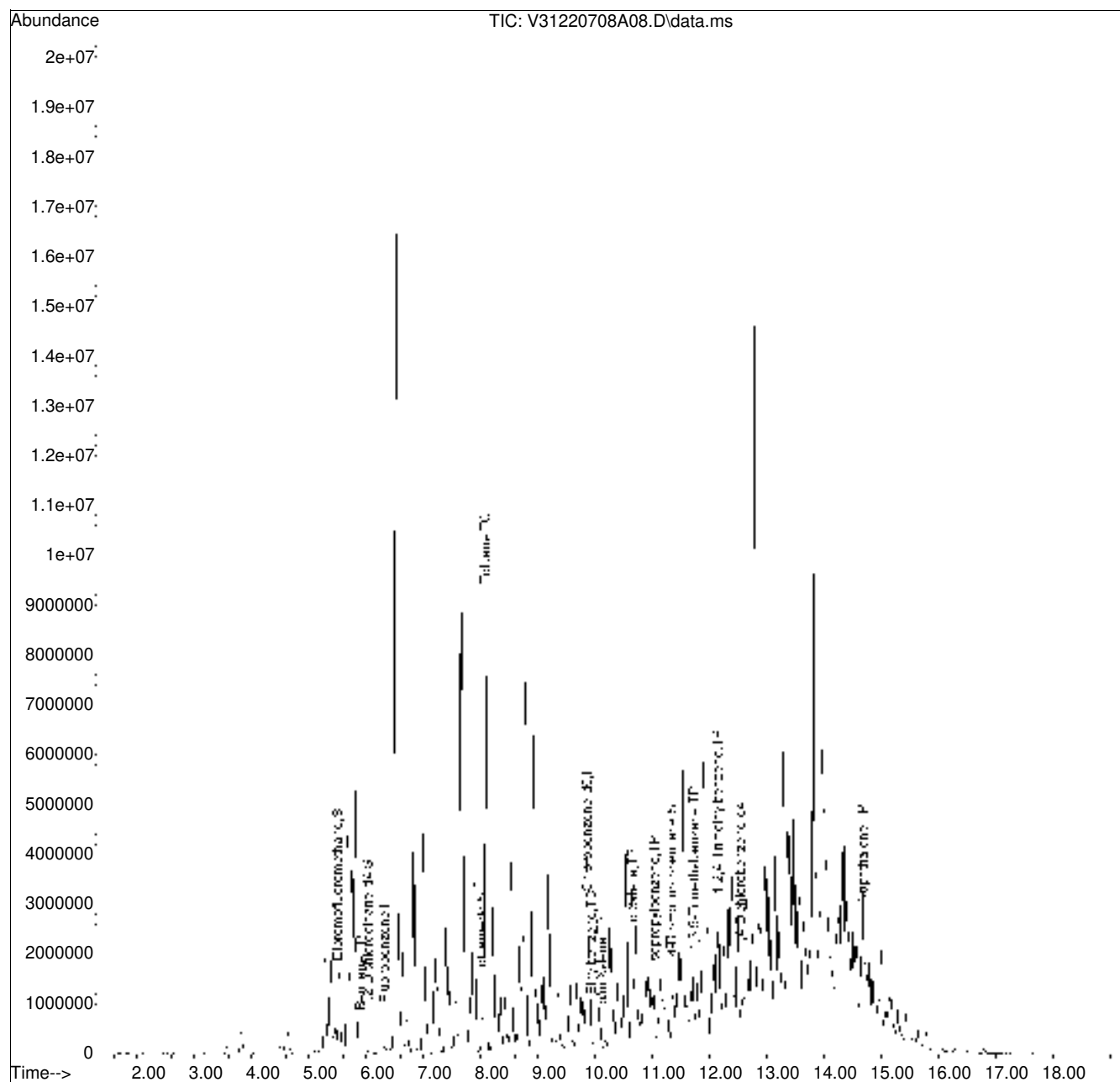


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708A\
 Data File : V31220708A08.D
 Acq On : 08 Jul 2022 10:17 am
 Operator : VOA131:MKS
 Sample : 12235695-21,31,3.97,5,,b,r2f
 Misc : WG1660450,ICAL19050
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 08 12:23:07 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220708A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08A\V31220708A01.D•





ANALYTICAL REPORT

Lab Number:	L2235860
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/15/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235860-01	PB-822-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:30	07/06/22
L2235860-02	PB-822-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:40	07/06/22
L2235860-03	PB-822-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:50	07/06/22
L2235860-04	PB-822-17-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:00	07/06/22
L2235860-05	PB-822-18-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:10	07/06/22
L2235860-06	PB-822-19-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:20	07/06/22
L2235860-07	PB-822-20-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:30	07/06/22
L2235860-08	DUP-31	SOIL	PHILADELPHIA, PA	07/06/22 00:00	07/06/22
L2235860-09	PB-824-01-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:00	07/06/22
L2235860-10	PB-824-02-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:10	07/06/22
L2235860-11	PB-824-03-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:20	07/06/22
L2235860-12	PB-824-04-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:30	07/06/22
L2235860-13	PB-824-05-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:40	07/06/22
L2235860-14	PB-824-06-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:50	07/06/22
L2235860-15	PB-824-07-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:00	07/06/22
L2235860-16	PB-824-08-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:10	07/06/22
L2235860-17	PB-824-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:20	07/06/22
L2235860-18	PB-824-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:30	07/06/22
L2235860-19	PB-824-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:40	07/06/22
L2235860-20	PB-824-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:50	07/06/22
L2235860-21	PB-824-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:00	07/06/22
L2235860-22	PB-824-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:10	07/06/22
L2235860-23	PB-824-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:20	07/06/22
L2235860-24	PB-824-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:30	07/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235860-25	FB-070622-1	WATER	PHILADELPHIA, PA	07/06/22 14:00	07/06/22
L2235860-26	FB-070622-2	WATER	PHILADELPHIA, PA	07/06/22 14:05	07/06/22
L2235860-27	FB-070622-3	WATER	PHILADELPHIA, PA	07/06/22 14:10	07/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Case Narrative (continued)

Report Revision

July 15, 2022: This report includes the results of the Microextractables analysis performed on L2235860-25, -26, and -27. In addition, the Volatile Organics analyte list has been amended on L2235860-25, -26, and -27 to remove 1,2-Dibromoethane.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235860-08 through -14 and -16 through -24: The sample was received in an inappropriate container for the PAHs analysis. At the client's request, the PAHs analysis was canceled.

L2235860-15: A sample identified as "PB-824-07-SS01" for PAHs analysis was listed on the Chain of Custody, but not received. This was verified by the client.

Volatile Organics


L2235860-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2235860-01D: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 07/15/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 05:59
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.016	J	mg/kg	0.027	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.12		mg/kg	0.054	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	1.7		mg/kg	0.054	0.0077	1
p/m-Xylene	3.7		mg/kg	0.11	0.030	1
o-Xylene	5.0		mg/kg	0.054	0.016	1
Xylenes, Total	8.7		mg/kg	0.054	0.016	1
Isopropylbenzene	0.42		mg/kg	0.054	0.0060	1
1,3,5-Trimethylbenzene	8.5		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	143	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01 D
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:48
 Analyst: LAC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

1,2,4-Trimethylbenzene	25.		mg/kg	0.54	0.091	5
------------------------	-----	--	-------	------	-------	---

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 06:25
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0011		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0057		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0090		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.064		mg/kg	0.0021	0.00058	1
o-Xylene	0.033		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.097		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0030		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.049		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:24
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 11:53
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:22
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:51
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:19
 Analyst: LAC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00024	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00096	0.00028	1
Xylenes, Total	ND		mg/kg	0.00096	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 15:52
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 09:39
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 15:59
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:02
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/13/22 16:06
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 10:25
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-07 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 09:16
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-27 Batch: WG1660208-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660382-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1660396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1660398-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/13/22 14:45
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/13/22 13:35

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-27 Batch: WG1662273-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-07 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-27 Batch: WG1660208-3 WG1660208-4								
Methyl tert butyl ether	110		110		63-130	0		20
Benzene	97		98		70-130	1		20
1,2-Dichloroethane	120		120		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4			113		70-130
Toluene-d8			101		70-130
4-Bromofluorobenzene			108		70-130
Dibromofluoromethane			104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660382-3 WG1660382-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
1,2-Dichloroethane	110		108		70-130	2		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	109		109		70-130	0		30
Ethylbenzene	109		107		70-130	2		30
p/m-Xylene	109		108		70-130	1		30
o-Xylene	109		106		70-130	3		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1660396-3 WG1660396-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1660398-3 WG1660398-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	104		102		70-130	2		30
Toluene	97		95		70-130	2		30
1,2-Dibromoethane	91		91		70-130	0		30
Ethylbenzene	100		98		70-130	2		30
p/m-Xylene	97		95		70-130	2		30
o-Xylene	96		94		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-27 Batch: WG1662273-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01 D
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 15:42
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.4		mg/kg	0.98	0.12	5
Fluorene	4.9		mg/kg	0.98	0.095	5
Phenanthrene	14.		mg/kg	0.59	0.12	5
Anthracene	1.1		mg/kg	0.59	0.19	5
Pyrene	0.58	J	mg/kg	0.59	0.098	5
Benzo(a)anthracene	ND		mg/kg	0.59	0.11	5
Chrysene	0.20	J	mg/kg	0.59	0.10	5
Benzo(b)fluoranthene	ND		mg/kg	0.59	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.78	0.24	5
Benzo(ghi)perylene	ND		mg/kg	0.78	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	149	Q	23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	82		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 17:32
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 17:56
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 18:20
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	0.028	J	mg/kg	0.19	0.019	1
Phenanthrene	0.071	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.022	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 18:44
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	70		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 19:08
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/22 19:32
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 06:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:24
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	82		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26
 Client ID: FB-070622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:05
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:40
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.05	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.06		ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.07	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	81		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27
 Client ID: FB-070622-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 13:55
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	78		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/06/22 14:13
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/06/22 06:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1659229-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 12:06
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-27 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1659229-2 WG1659229-3								
Naphthalene	52		63		40-140	19		50
Fluorene	61		66		40-140	8		50
Phenanthrene	54		60		40-140	11		50
Anthracene	57		63		40-140	10		50
Pyrene	59		64		35-142	8		50
Benzo(a)anthracene	62		68		40-140	9		50
Chrysene	61		66		40-140	8		50
Benzo(b)fluoranthene	71		76		40-140	7		50
Benzo(a)pyrene	72		77		40-140	7		50
Benzo(ghi)perylene	58		63		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	50		59		23-120
2-Fluorobiphenyl	60		70		30-120
4-Terphenyl-d14	71		75		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-27 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149



METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.6		mg/kg	2.29	0.123	1	07/07/22 11:50	07/08/22 09:05	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.75		mg/kg	2.34	0.126	1	07/07/22 11:50	07/08/22 09:10	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03

Date Collected: 07/06/22 09:50

Client ID: PB-822-16-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.6		mg/kg	2.28	0.122	1	07/07/22 11:50	07/08/22 09:14	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04

Date Collected: 07/06/22 10:00

Client ID: PB-822-17-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.91		mg/kg	2.30	0.123	1	07/07/22 11:50	07/08/22 09:19	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.52		mg/kg	2.33	0.125	1	07/07/22 11:50	07/08/22 09:23	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06

Date Collected: 07/06/22 10:20

Client ID: PB-822-19-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.65		mg/kg	2.28	0.122	1	07/07/22 11:50	07/08/22 09:28	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.42		mg/kg	2.25	0.121	1	07/07/22 11:50	07/08/22 09:32	EPA 3050B	1,6010D	NB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-25
 Client ID: FB-070622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 09:51	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-26

Date Collected: 07/06/22 14:05

Client ID: FB-070622-2

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 10:01	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-27

Date Collected: 07/06/22 14:10

Client ID: FB-070622-3

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 10:06	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235860

Project Number: 200.00135.006

Report Date: 07/15/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1659924-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	07/07/22 11:50	07/08/22 08:01	1,6010D	NB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 25-27 Batch: WG1659971-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	07/07/22 15:46	07/08/22 09:42	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1659924-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 25-27 Batch: WG1659971-2								
Lead, Total	107		-		80-120	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1659924-3 QC Sample: L2235017-01 Client ID: MS Sample												
Lead, Total	12.6	46.2	42.2	64	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 25-27 QC Batch ID: WG1659971-3 QC Sample: L2235860-25 Client ID: FB-070622-1												
Lead, Total	ND	530	529.5	100		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1659924-4 QC Sample: L2235017-01 Client ID: DUP Sample						
Lead, Total	12.6	11.7	mg/kg	7		20
Total Metals - Mansfield Lab Associated sample(s): 25-27 QC Batch ID: WG1659971-4 QC Sample: L2235860-25 Client ID: FB-070622-1						
Lead, Total	ND	ND	ug/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-01
 Client ID: PB-822-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-02
 Client ID: PB-822-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-03
 Client ID: PB-822-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-04
 Client ID: PB-822-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-05
 Client ID: PB-822-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-06
 Client ID: PB-822-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235860
Report Date: 07/15/22

SAMPLE RESULTS

Lab ID: L2235860-07
 Client ID: PB-822-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	07/07/22 06:50	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235860

Report Date: 07/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1659698-1 QC Sample: L2235860-01 Client ID: PB-822-14-SS01						
Solids, Total	82.8	82.9	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-01A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-01B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-01C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-01D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-01F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-02A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-02B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-02C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-02D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-02F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-03A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-03B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-03C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-03D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-03F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-04A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-04B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-04C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-04D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-04F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-05A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-05B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-05C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-05D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-05F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-06A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-06B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-06C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-06D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-06F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-07A	Vial MeOH preserved	A	NA		5.3	Y	Absent		PA-8260HLW(14)
L2235860-07B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-07C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	PA-8260HLW(14)
L2235860-07D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		TS(7)
L2235860-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		PB-TI(180)
L2235860-07F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		PA-PAH(14)
L2235860-08A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-08C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-08D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-08F	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-09A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-09B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-09C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-09D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-10A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-10B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-10C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-10D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-11A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-11B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-11C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-11D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-12A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-12B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-12C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-12D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-13A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-13B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-13C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-13D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-14A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-14B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-14C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-14D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-15A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-15B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-15C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-16A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-16B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-16C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-16D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-17A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-17B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-17C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-17D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-18A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-18B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-18C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-18D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-19A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-19B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-19C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-19D	Plastic 120ml unpreserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-20A	Vial MeOH preserved	A	NA		5.3	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-20B	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-20C	Vial water preserved	A	NA		5.3	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-20D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-21A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-21B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-21C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-21D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-22A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-22B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-22C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-22D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-23A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-23B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-23C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235860**Project Number:** 200.00135.006**Report Date:** 07/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235860-23D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-24A	Vial MeOH preserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-24B	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-24C	Vial water preserved	B	NA		5.1	Y	Absent	07-JUL-22 05:19	HOLD-CONTINGENCY(14)
L2235860-24D	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		HOLD-CONTINGENCY(14)
L2235860-25A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-25D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-25E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-25F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)
L2235860-26A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-26D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-26E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-26F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)
L2235860-27A	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27B	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27C	Vial HCl preserved	B	NA		5.1	Y	Absent		8011(14),PA-8260(14)
L2235860-27D	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-27E	Amber 250ml unpreserved	B	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2235860-27F	Plastic 250ml HNO3 preserved	B	<2	<2	5.1	Y	Absent		PB-6020T-PPB(180)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA
TEL: 508-898-8220
FAX: 508-898-5180

Mansfield, MA
TEL: 508-823-8300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard RUSH (ONLY IF PRE-APPROVED)

2-DAY

Due Date: _____ Time: _____

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-801-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcglobal.com

Date Rec'd in Lab: 7/7/22

ALPHA Job #: L2235860

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

Sample ID	Collection		Sample Matrix	Sampler's Initials	Short list 4	ANALYSIS														
	Date	Time				1	2	3	4	5	6	7	8	9	10					
35860-11	7/6/22	1120	S	ca	✓															
12		1130			✓															
13		1140			✓															
14		1150			✓															
15		1200			✓															
16		1210			✓															
17		1220			✓															
18		1230			✓															
19		1240			✓															
20		1250			✓															

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35860-11	PB-824-03-5501	7/6/22	1120	S	ca
12	PB-824-04-5501		1130		
13	PB-824-05-5501		1140		
14	PB-824-06-5501		1150		
15	PB-824-07-5501		1200		
16	PB-824-08-5501		1210		
17	PB-824-09-5501		1220		
18	PB-824-10-5501		1230		
19	PB-824-11-5501		1240		
20	PB-824-12-5501		1250		

Container Type	-	-	6	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/6/22	ST-AAL	7/11/22 1430
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/14/22 310
<i>[Signature]</i>	7/7/22	<i>[Signature]</i>	7/7/22 02:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples analyzed are subject to Alpha's Payment Terms.

L2235860



CHAIN OF CUSTODY

PAGE 3 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
2-DAY

Due Date: Time:

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9100 FAX: 508-822-3258

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-801-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hickglobal.com

Date Rec'd in Lab: 7/7/22

ALPHA Job #: L22860

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3662

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Short list 4	Short list 1-5													
35860-21	7/6/22	1300	S	an	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22		1310			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23		1320			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24		1330			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25		1400	W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26		1405			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27		1410			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- SAMPLE HANDLING**
- Filtration
 - Dose
 - Not Needed
 - Lab to do
 - Preservation
 - Lab to do (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35860-21	PB-824-13-SS01	7/6/22	1300	S	an
22	PB-824-14-SS01		1310		
23	PB-824-15-SS01		1320		
24	PB-824-16-SS01		1330		
25	FB-070622-1		1400	W	
26	FB-070622-2		1405		
27	FB-070622-3		1410		

Container Type	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

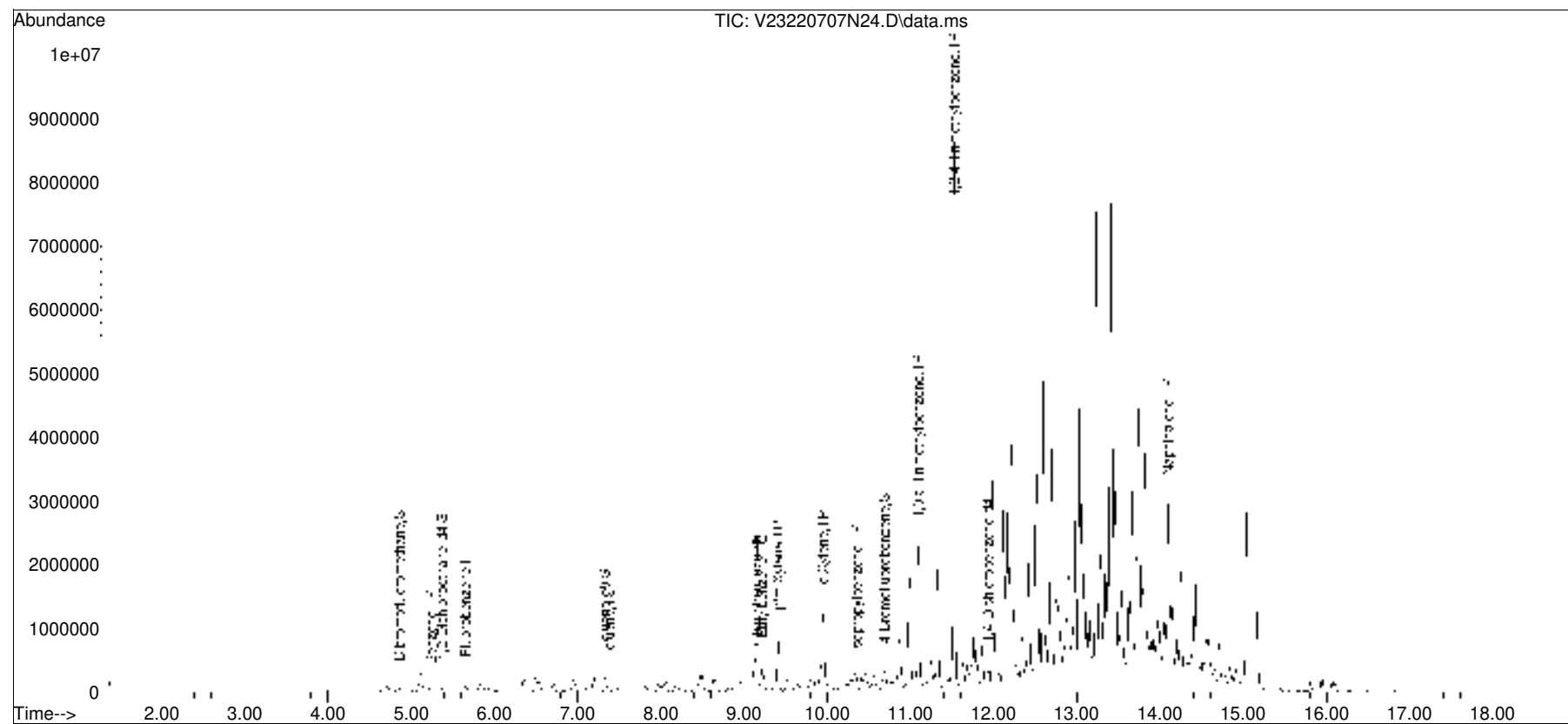
Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/6/22 14:28
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/6/22 18:00
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/4/22 09:00

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220707N\
Data File : V23220707N24.D
Acq On : 08 Jul 2022 05:59 am
Operator : VOA123:MKS
Sample : 12235860-01,31h,6.83,5,0.100,,a,r1b
Misc : WG1660398,ICAL19133
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 06:51:56 2022
Quant Method : I:\VOLATILES\VOA123\2022\220707N\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V23220707N01.D•





ANALYTICAL REPORT

Lab Number:	L2235873
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/08/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235873-01	PB-836-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:30	07/06/22
L2235873-02	PB-836-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:40	07/06/22
L2235873-03	PB-836-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 09:50	07/06/22
L2235873-04	PB-836-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:00	07/06/22
L2235873-05	PB-836-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:10	07/06/22
L2235873-06	PB-836-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:20	07/06/22
L2235873-07	PB-836-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 10:30	07/06/22
L2235873-08	PB-835-01-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:30	07/06/22
L2235873-09	PB-835-02-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:40	07/06/22
L2235873-10	PB-835-03-SS01	SOIL	PHILADELPHIA, PA	07/06/22 11:50	07/06/22
L2235873-11	PB-835-04-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:00	07/06/22
L2235873-12	PB-835-05-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:10	07/06/22
L2235873-13	PB-835-06-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:20	07/06/22
L2235873-14	PB-835-07-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:30	07/06/22
L2235873-15	PB-835-08-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:40	07/06/22
L2235873-16	PB-835-09-SS01	SOIL	PHILADELPHIA, PA	07/06/22 12:50	07/06/22
L2235873-17	PB-835-10-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:00	07/06/22
L2235873-18	PB-835-11-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:10	07/06/22
L2235873-19	PB-835-12-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:20	07/06/22
L2235873-20	PB-835-13-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:30	07/06/22
L2235873-21	PB-835-14-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:35	07/06/22
L2235873-22	PB-835-15-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:40	07/06/22
L2235873-23	PB-835-16-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:45	07/06/22
L2235873-24	PB-835-17-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:50	07/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2235873-25	PB-835-18-SS01	SOIL	PHILADELPHIA, PA	07/06/22 13:55	07/06/22
L2235873-26	DUP-35	SOIL	PHILADELPHIA, PA	07/06/22 00:00	07/06/22
L2235873-27	FB-070622-4	WATER	PHILADELPHIA, PA	07/06/22 14:10	07/06/22
L2235873-28	FB-070622-5	WATER	PHILADELPHIA, PA	07/06/22 14:20	07/06/22
L2235873-29	FB-070622-6	WATER	PHILADELPHIA, PA	07/06/22 14:30	07/06/22
L2235873-30	TB-070622	WATER	PHILADELPHIA, PA	07/06/22 00:00	07/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2235873-26: The Client ID was specified by the client.

Volatile Organics

L2235873-10, -13, -14, and -15: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2235873-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (173%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235873-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235873-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2235873-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 07/08/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-01
 Client ID: PB-836-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 15:14
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0013		mg/kg	0.00059	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00064	1
Ethylbenzene	0.00024	J	mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00032	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00084	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00070	J	mg/kg	0.0024	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-02
 Client ID: PB-836-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 19:02
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00041	J	mg/kg	0.0025	0.00026	1
Benzene	0.011		mg/kg	0.00063	0.00021	1
Toluene	0.00092	J	mg/kg	0.0013	0.00069	1
Ethylbenzene	0.00086	J	mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0016		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0024	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-03
 Client ID: PB-836-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:12
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00036	J	mg/kg	0.0024	0.00025	1
Benzene	0.00034	J	mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00063	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-04
 Client ID: PB-836-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 16:40
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00043	J	mg/kg	0.0026	0.00026	1
Benzene	0.00029	J	mg/kg	0.00065	0.00022	1
Toluene	ND		mg/kg	0.0013	0.00071	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0011	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-05
 Client ID: PB-836-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:09
 Analyst: JC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	0.0016		mg/kg	0.00088	0.00029	1
Toluene	ND		mg/kg	0.0018	0.00095	1
Ethylbenzene	0.0010	J	mg/kg	0.0018	0.00025	1
Isopropylbenzene	0.0014	J	mg/kg	0.0018	0.00019	1
1,3,5-Trimethylbenzene	0.0068		mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.0079		mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-06
 Client ID: PB-836-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 17:37
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	0.00032	J	mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.00016	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-07
 Client ID: PB-836-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:05
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 18:34
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.00014	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
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1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-09
 Client ID: PB-835-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 23:32
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0010	0.00058	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10
 Client ID: PB-835-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:29
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0098	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	0.014	J	mg/kg	0.059	0.0084	1
Isopropylbenzene	1.1		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-11
 Client ID: PB-835-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 23:56
 Analyst: MKS
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.00029	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:52
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.096	0.0097	1
Benzene	0.31		mg/kg	0.024	0.0080	1
Toluene	ND		mg/kg	0.048	0.026	1
Ethylbenzene	1.5		mg/kg	0.048	0.0068	1
Isopropylbenzene	2.4		mg/kg	0.048	0.0053	1
1,3,5-Trimethylbenzene	2.6		mg/kg	0.096	0.0093	1
1,2,4-Trimethylbenzene	8.3		mg/kg	0.096	0.016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-13
 Client ID: PB-835-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:16
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	0.20		mg/kg	0.060	0.0085	1
Isopropylbenzene	1.2		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.24		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-14
 Client ID: PB-835-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:39
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.063	0.034	1
Ethylbenzene	ND		mg/kg	0.063	0.0089	1
Isopropylbenzene	1.1		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-15
 Client ID: PB-835-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:03
 Analyst: MKS
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0096	1
Toluene	ND		mg/kg	0.058	0.031	1
Ethylbenzene	ND		mg/kg	0.058	0.0082	1
Isopropylbenzene	0.0084	J	mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-16
 Client ID: PB-835-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 00:19
 Analyst: MKS
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00057	J	mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-17
 Client ID: PB-835-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:26
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.011	J	mg/kg	0.028	0.0094	1
Toluene	ND		mg/kg	0.056	0.031	1
Ethylbenzene	0.57		mg/kg	0.056	0.0080	1
Isopropylbenzene	0.72		mg/kg	0.056	0.0062	1
1,3,5-Trimethylbenzene	2.8		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	9.4		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-18
 Client ID: PB-835-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 00:42
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00028	J	mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	0.00023	J	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.00098	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-19
 Client ID: PB-835-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 01:06
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00022	J	mg/kg	0.0021	0.00021	1
Benzene	0.0010		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.00016	J	mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-20
 Client ID: PB-835-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 12:19
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-21
 Client ID: PB-835-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:35
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:04
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00053	J	mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-22
 Client ID: PB-835-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:30
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00080	0.00027	1
Toluene	ND		mg/kg	0.0016	0.00087	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-23
 Client ID: PB-835-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:45
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 02:56
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-24
 Client ID: PB-835-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:22
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00025	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-25
 Client ID: PB-835-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:55
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 03:48
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-26
 Client ID: DUP-35
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 04:14
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-27
 Client ID: FB-070622-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:13
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-28
 Client ID: FB-070622-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 12:38
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-29
 Client ID: FB-070622-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:04
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-30
 Client ID: TB-070622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/07/22 13:29
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 10:28
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-08 Batch: WG1660050-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 11:47
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 27-30 Batch: WG1660225-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	116		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/07/22 21:44
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21-26 Batch: WG1660396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,11,16,18-19 Batch: WG1660426-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/07/22 19:37
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10,12-15,17 Batch: WG1660428-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 11:50
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 20 Batch: WG1660514-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-08 Batch: WG1660050-3 WG1660050-4								
Methyl tert butyl ether	127		126		66-130	1		30
Benzene	116		114		70-130	2		30
Toluene	110		108		70-130	2		30
Ethylbenzene	109		107		70-130	2		30
Isopropylbenzene	109		107		70-130	2		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	108		106		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		101		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 27-30 Batch: WG1660225-3 WG1660225-4								
Methyl tert butyl ether	85		89		63-130	5		20
Benzene	100		100		70-130	0		20
Toluene	98		95		70-130	3		20
Ethylbenzene	96		97		70-130	1		20
Isopropylbenzene	90		93		70-130	3		20
1,3,5-Trimethylbenzene	90		93		64-130	3		20
1,2,4-Trimethylbenzene	88		92		70-130	4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		92		70-130
Toluene-d8	96		93		70-130
4-Bromofluorobenzene	90		87		70-130
Dibromofluoromethane	105		107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21-26 Batch: WG1660396-3 WG1660396-4								
Methyl tert butyl ether	94		92		66-130	2		30
Benzene	101		99		70-130	2		30
Toluene	97		95		70-130	2		30
Ethylbenzene	100		98		70-130	2		30
Isopropylbenzene	101		100		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		99		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		113		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,11,16,18-19 Batch: WG1660426-3 WG1660426-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
Toluene	93		94		70-130	1		30
Ethylbenzene	93		93		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10,12-15,17 Batch: WG1660428-3 WG1660428-4								
Methyl tert butyl ether	98		97		66-130	1		30
Benzene	93		97		70-130	4		30
Toluene	93		94		70-130	1		30
Ethylbenzene	93		93		70-130	0		30
Isopropylbenzene	93		93		70-130	0		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	77		81		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	88		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 20 Batch: WG1660514-3 WG1660514-4								
Methyl tert butyl ether	78		80		66-130	3		30
Benzene	89		90		70-130	1		30
Toluene	87		89		70-130	2		30
Ethylbenzene	87		88		70-130	1		30
Isopropylbenzene	86		86		70-130	0		30
1,3,5-Trimethylbenzene	87		87		70-130	0		30
1,2,4-Trimethylbenzene	87		86		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	89		88		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-01
 Client ID: PB-836-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:52
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.55		mg/kg	0.19	0.023	1
Fluorene	0.22		mg/kg	0.19	0.019	1
Phenanthrene	0.97		mg/kg	0.12	0.023	1
Anthracene	0.32		mg/kg	0.12	0.037	1
Pyrene	1.1		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.66		mg/kg	0.12	0.022	1
Chrysene	1.3		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	1.3		mg/kg	0.12	0.032	1
Benzo(a)pyrene	1.7		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	1.0		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-02
 Client ID: PB-836-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:23
 Analyst: IM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.13	0.026	1
Anthracene	ND		mg/kg	0.13	0.041	1
Pyrene	ND		mg/kg	0.13	0.021	1
Benzo(a)anthracene	0.044	J	mg/kg	0.13	0.024	1
Chrysene	0.15		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	0.068	J	mg/kg	0.13	0.036	1
Benzo(a)pyrene	0.089	J	mg/kg	0.17	0.052	1
Benzo(ghi)perylene	0.070	J	mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	56		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-03
 Client ID: PB-836-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:53
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-04
 Client ID: PB-836-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 00:16
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-05
 Client ID: PB-836-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:31
 Analyst: IM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	0.074	J	mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.13		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.082	J	mg/kg	0.12	0.022	1
Chrysene	0.086	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.10	J	mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.089	J	mg/kg	0.15	0.047	1
Benzo(ghi)perylene	0.048	J	mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-06
 Client ID: PB-836-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:01
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-07
 Client ID: PB-836-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 10:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 00:39
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:53
 Analyst: IM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.19	0.023	1
Fluorene	0.050	J	mg/kg	0.19	0.018	1
Phenanthrene	0.12		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.15		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.13		mg/kg	0.11	0.021	1
Chrysene	0.12		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.22		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.18		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-09
 Client ID: PB-835-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:45
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.099	J	mg/kg	0.20	0.024	1
Fluorene	0.063	J	mg/kg	0.20	0.019	1
Phenanthrene	0.60		mg/kg	0.12	0.024	1
Anthracene	0.18		mg/kg	0.12	0.038	1
Pyrene	0.78		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.53		mg/kg	0.12	0.022	1
Chrysene	0.50		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.61		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.55		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.29		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	49		30-120
4-Terphenyl-d14	43		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10
 Client ID: PB-835-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:00
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.30		mg/kg	0.19	0.023	1
Fluorene	0.23		mg/kg	0.19	0.018	1
Phenanthrene	0.41		mg/kg	0.11	0.023	1
Anthracene	0.060	J	mg/kg	0.11	0.037	1
Pyrene	0.085	J	mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.036	J	mg/kg	0.11	0.021	1
Chrysene	0.036	J	mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.043	J	mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-11
 Client ID: PB-835-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:30
 Analyst: IM
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.21		mg/kg	0.21	0.025	1
Fluorene	0.20	J	mg/kg	0.21	0.020	1
Phenanthrene	1.0		mg/kg	0.12	0.025	1
Anthracene	0.32		mg/kg	0.12	0.040	1
Pyrene	0.99		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.71		mg/kg	0.12	0.023	1
Chrysene	0.76		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	0.79		mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.66		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.32		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 08:08
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7	E	mg/kg	0.19	0.023	1
Fluorene	2.9		mg/kg	0.19	0.019	1
Phenanthrene	4.7		mg/kg	0.12	0.023	1
Anthracene	0.69		mg/kg	0.12	0.037	1
Pyrene	0.78		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.17		mg/kg	0.12	0.022	1
Chrysene	0.28		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.20		mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.17		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	0.10	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	86		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-12 D
 Client ID: PB-835-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 11:47
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	8.1		mg/kg	0.96	0.12	5



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-13
 Client ID: PB-835-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:15
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.30		mg/kg	0.20	0.024	1
Fluorene	0.50		mg/kg	0.20	0.019	1
Phenanthrene	1.0		mg/kg	0.12	0.024	1
Anthracene	0.12		mg/kg	0.12	0.038	1
Pyrene	0.10	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.023	J	mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-14
 Client ID: PB-835-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:31
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.20	0.024	1
Fluorene	0.20		mg/kg	0.20	0.019	1
Phenanthrene	0.35		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	49		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-15
 Client ID: PB-835-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 03:16
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	0.044	J	mg/kg	0.19	0.019	1
Phenanthrene	0.073	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-16
 Client ID: PB-835-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:08
 Analyst: IM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.068	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	0.15		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.14		mg/kg	0.11	0.021	1
Chrysene	0.13		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.21		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.20		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.090	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-17
 Client ID: PB-835-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 07:23
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.94		mg/kg	0.20	0.024	1
Fluorene	0.55		mg/kg	0.20	0.019	1
Phenanthrene	1.1		mg/kg	0.12	0.024	1
Anthracene	0.21		mg/kg	0.12	0.039	1
Pyrene	0.71		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.63		mg/kg	0.12	0.022	1
Chrysene	0.57		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.87		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.88		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.36		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	60		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-18
 Client ID: PB-835-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 03:38
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-19
 Client ID: PB-835-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:24
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-20
 Client ID: PB-835-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:01
 Analyst: IM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.095	J	mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.14		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.11		mg/kg	0.11	0.021	1
Chrysene	0.10	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.15		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.14	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.065	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-21
 Client ID: PB-835-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:35
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 02:09
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	103		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-22
 Client ID: PB-835-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:40
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 04:46
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-23
 Client ID: PB-835-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:45
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 01:46
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1
Fluorene	ND		mg/kg	0.20	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-24
 Client ID: PB-835-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 12:10
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.039	J	mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	0.040	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.061	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.045	J	mg/kg	0.12	0.022	1
Chrysene	0.045	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.056	J	mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.050	J	mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.027	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-25
 Client ID: PB-835-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:55
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 06:20
 Analyst: SZ
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17	J	mg/kg	0.18	0.022	1
Fluorene	0.045	J	mg/kg	0.18	0.018	1
Phenanthrene	0.37		mg/kg	0.11	0.022	1
Anthracene	0.10	J	mg/kg	0.11	0.035	1
Pyrene	0.41		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.28		mg/kg	0.11	0.020	1
Chrysene	0.29		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.34		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.30		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.16		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-26
 Client ID: DUP-35
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 00:00
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/08/22 05:56
 Analyst: SZ
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	0.021	J	mg/kg	0.20	0.019	1
Phenanthrene	0.13		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.16		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.11	J	mg/kg	0.12	0.022	1
Chrysene	0.11	J	mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.14		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.13	J	mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.075	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	93		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-27
 Client ID: FB-070622-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:10
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:12
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	84		15-120
4-Terphenyl-d14	93		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-28
 Client ID: FB-070622-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:20
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:27
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	83		15-120
4-Terphenyl-d14	91		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-29
 Client ID: FB-070622-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 14:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 14:43
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 12:06
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/07/22 07:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 27-29 Batch: WG1659730-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.04	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	0.02	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	0.02	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	77		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 22:02
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:05

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-20 Batch: WG1659815-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/07/22 23:09
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 07/07/22 09:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-26 Batch: WG1659873-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	99		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 27-29 Batch: WG1659730-2 WG1659730-3								
Naphthalene	84		91		40-140	8		40
Fluorene	84		90		40-140	7		40
Phenanthrene	84		91		40-140	8		40
Anthracene	84		92		40-140	9		40
Pyrene	86		93		26-127	8		40
Benzo(a)anthracene	78		85		40-140	9		40
Chrysene	89		95		40-140	7		40
Benzo(b)fluoranthene	87		94		40-140	8		40
Benzo(a)pyrene	80		87		40-140	8		40
Benzo(ghi)perylene	94		102		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		88		23-120
2-Fluorobiphenyl	81		87		15-120
4-Terphenyl-d14	88		96		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-20 Batch: WG1659815-2 WG1659815-3								
Naphthalene	64		59		40-140	8		50
Fluorene	71		64		40-140	10		50
Phenanthrene	61		56		40-140	9		50
Anthracene	65		60		40-140	8		50
Pyrene	66		60		35-142	10		50
Benzo(a)anthracene	71		67		40-140	6		50
Chrysene	68		64		40-140	6		50
Benzo(b)fluoranthene	79		73		40-140	8		50
Benzo(a)pyrene	80		74		40-140	8		50
Benzo(ghi)perylene	67		62		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	63		61		23-120
2-Fluorobiphenyl	71		68		30-120
4-Terphenyl-d14	78		72		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-26 Batch: WG1659873-2 WG1659873-3								
Naphthalene	94		85		40-140	10		50
Fluorene	108		98		40-140	10		50
Phenanthrene	95		85		40-140	11		50
Anthracene	101		91		40-140	10		50
Pyrene	103		93		35-142	10		50
Benzo(a)anthracene	111		102		40-140	8		50
Chrysene	109		99		40-140	10		50
Benzo(b)fluoranthene	121		115		40-140	5		50
Benzo(a)pyrene	124		114		40-140	8		50
Benzo(ghi)perylene	104		95		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	92		82		23-120
2-Fluorobiphenyl	105		97		30-120
4-Terphenyl-d14	118		107		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-01

Date Collected: 07/06/22 09:30

Client ID: PB-836-09-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-02

Client ID: PB-836-10-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:40

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-03

Client ID: PB-836-11-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 09:50

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-04

Date Collected: 07/06/22 10:00

Client ID: PB-836-12-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-05

Date Collected: 07/06/22 10:10

Client ID: PB-836-13-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-06

Date Collected: 07/06/22 10:20

Client ID: PB-836-14-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-07

Date Collected: 07/06/22 10:30

Client ID: PB-836-15-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-08
 Client ID: PB-835-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 11:30
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-09

Date Collected: 07/06/22 11:40

Client ID: PB-835-02-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2235873

Project Number: 200.00135.006

Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-10

Date Collected: 07/06/22 11:50

Client ID: PB-835-03-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-11

Date Collected: 07/06/22 12:00

Client ID: PB-835-04-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-12

Date Collected: 07/06/22 12:10

Client ID: PB-835-05-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-13

Date Collected: 07/06/22 12:20

Client ID: PB-835-06-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-14

Client ID: PB-835-07-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 12:30

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-15

Date Collected: 07/06/22 12:40

Client ID: PB-835-08-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-16

Date Collected: 07/06/22 12:50

Client ID: PB-835-09-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-17

Date Collected: 07/06/22 13:00

Client ID: PB-835-10-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-18

Date Collected: 07/06/22 13:10

Client ID: PB-835-11-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-19

Date Collected: 07/06/22 13:20

Client ID: PB-835-12-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-20

Date Collected: 07/06/22 13:30

Client ID: PB-835-13-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/07/22 10:14	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2235873**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-21

Client ID: PB-835-14-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:35

Date Received: 07/06/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-22

Date Collected: 07/06/22 13:40

Client ID: PB-835-15-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-23

Date Collected: 07/06/22 13:45

Client ID: PB-835-16-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

SAMPLE RESULTS

Lab ID: L2235873-24
 Client ID: PB-835-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/06/22 13:50
 Date Received: 07/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-25

Date Collected: 07/06/22 13:55

Client ID: PB-835-18-SS01

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.7		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**SAMPLE RESULTS**

Lab ID: L2235873-26

Date Collected: 07/06/22 00:00

Client ID: DUP-35

Date Received: 07/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/07/22 10:30	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2235873

Report Date: 07/08/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1659792-1 QC Sample: L2235873-01 Client ID: PB-836-09-SS01						
Solids, Total	86.3	86.9	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-26 QC Batch ID: WG1659802-1 QC Sample: L2235930-05 Client ID: DUP Sample						
Solids, Total	88.9	88.6	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-01A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-01B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-01C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-01D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-01E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-02A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-02B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-02C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-02D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-02E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-03A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-03B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-03C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-03D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-03E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-04A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-04B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-04C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-04D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-04E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-05A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-05B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-05C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-05D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-05E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-06A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-06B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-06C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-06D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-06E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-07A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-07B	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-07C	Vial water preserved	A	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-07D	Plastic 120ml unpreserved	A	NA		4.2	Y	Absent		TS(7)
L2235873-07E	Glass 120ml/4oz unpreserved	A	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-08A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-08B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-08C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-08D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-08E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-09A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-09B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-09C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-09D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-09E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-10A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-10B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-10C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-10D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-10E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-11A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-11B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-11C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-11D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-11E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-12A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-12B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-12C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-12D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-12E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-13A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-13B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-13C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-13D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-13E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-14A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-14B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-14C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-14D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-14E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-15A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-15B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-15C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-15D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-15E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-16A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-16B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-16C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-16D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-16E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-17A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-17B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-17C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-17D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-17E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-18A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-18B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-18C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-18D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-18E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-19A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-19B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-19C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-19D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-19E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-20A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-20B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-20C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-20D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)
L2235873-20E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-21A	Vial MeOH preserved	D	NA		4.2	Y	Absent		PA-8260HLW(14)
L2235873-21B	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-21C	Vial water preserved	D	NA		4.2	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-21D	Plastic 120ml unpreserved	D	NA		4.2	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-21E	Glass 120ml/4oz unpreserved	D	NA		4.2	Y	Absent		PA-PAH(14)
L2235873-22A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-22B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-22C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-22D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-22E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-23A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2235873-23B	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-23C	Vial water preserved	B	NA		4.9	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-23D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2235873-23E	Glass 120ml/4oz unpreserved	B	NA		4.9	Y	Absent		PA-PAH(14)
L2235873-24A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-24B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-24C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-24D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-24E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-25A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-25B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-25C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-25D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-25E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-26A	Vial MeOH preserved	C	NA		5.6	Y	Absent		PA-8260HLW(14)
L2235873-26B	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-26C	Vial water preserved	C	NA		5.6	Y	Absent	07-JUL-22 08:43	PA-8260HLW(14)
L2235873-26D	Plastic 120ml unpreserved	C	NA		5.6	Y	Absent		TS(7)
L2235873-26E	Glass 120ml/4oz unpreserved	C	NA		5.6	Y	Absent		PA-PAH(14)
L2235873-27A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-27B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2235873**Project Number:** 200.00135.006**Report Date:** 07/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2235873-27C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-27D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-27E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-28A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-28D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-28E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-29A	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29B	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29C	Vial HCl preserved	C	NA		5.6	Y	Absent		PA-8260(14)
L2235873-29D	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-29E	Amber 250ml unpreserved	C	7	7	5.6	Y	Absent		PA-PAHSIM-LVI(7)
L2235873-30A	Vial HCl preserved	B	NA		4.9	Y	Absent		PA-8260(14)
L2235873-30B	Vial HCl preserved	B	NA		4.9	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2235873
Report Date: 07/08/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18589

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hlcoglobal.com

Westborough, MA Mansfield, MA
 TEL: 508-895-0225 TEL: 508-822-0300
 FAX: 508-895-0193 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Date Rec'd in Lab: 7/7/22

ALPHA Job #: L2235873

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PADEP Shortlist 3-5	ANALYSIS										Sample Specific Comments	TOTAL # BOTTLES		
		Date	Time				1	2	3	4	5	6	7	8	9	10				
35873-01	PB-836-09-SS01	7/6	0930	S	TS	✓														
02	PB-836-10-SS01		0940			✓														
03	PB-836-11-SS01		0950			✓														
04	PB-836-12-SS01		1000			✓														
05	PB-836-13-SS01		1010			✓														
06	PB-836-14-SS01		1020			✓														
07	PB-836-15-SS01		1030			✓														
08	PB-835-01-SS01		1130			✓														
09	PB-835-02-SS01		1140			✓														
10	PB-835-03-SS01		1150			✓														

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35873-01	PB-836-09-SS01	7/6	0930	S	TS
02	PB-836-10-SS01		0940		
03	PB-836-11-SS01		0950		
04	PB-836-12-SS01		1000		
05	PB-836-13-SS01		1010		
06	PB-836-14-SS01		1020		
07	PB-836-15-SS01		1030		
08	PB-835-01-SS01		1130		
09	PB-835-02-SS01		1140		
10	PB-835-03-SS01		1150		

Container Type: - - - 0 - - - - -
 Preservative: - - - - -

Released By:	Date/Time: 7/6/22	Received By: ST, AAL	Date/Time: 7/6/22 14:57
	7/22/22		7/22/22
	7/6/22		7/6/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 3 OF 3

Westborough, MA
TEL: 508-895-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-832-9300
FAX: 508-492-3288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to odd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hlcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
35873-21	PB-835-14-5501	7/6	1335	S	TS
22	PB-835-15-5501		1340	S	
23	PB-835-16-5501		1345	S	
24	PB-835-17-5501		1350	S	
25	PB-835-18-5501		1355	S	
26	DUP-32		-	S	
27	FB-070622-4		1410	W	
28	FB-070622-5		1420	W	
29	FB-070622-6		1430	W	
30	TB-070622		-	W	

FORM NO. 10-03-04
(Rev. 8/2006)

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18593

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 7/7/22

ALPHA Job #: 2235873

Report Information / Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

PADEP Shortlist 3-5
VOC Petroleum F SL 3-5

Sample ID	PADEP Shortlist 3-5	VOC Petroleum F	SL 3-5	Other Analytes
35873-21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
29	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Container Type									
Preservative									

Reinstated By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/6/22	ST-ALC	7/6/22 1457
<i>[Signature]</i>	7/6/22 1800	<i>[Signature]</i>	7/6-1800
<i>[Signature]</i>	7/6-2100	<i>[Signature]</i>	7/6/22 2100
<i>[Signature]</i>	7/6/22	<i>[Signature]</i>	7/7/22 0020

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

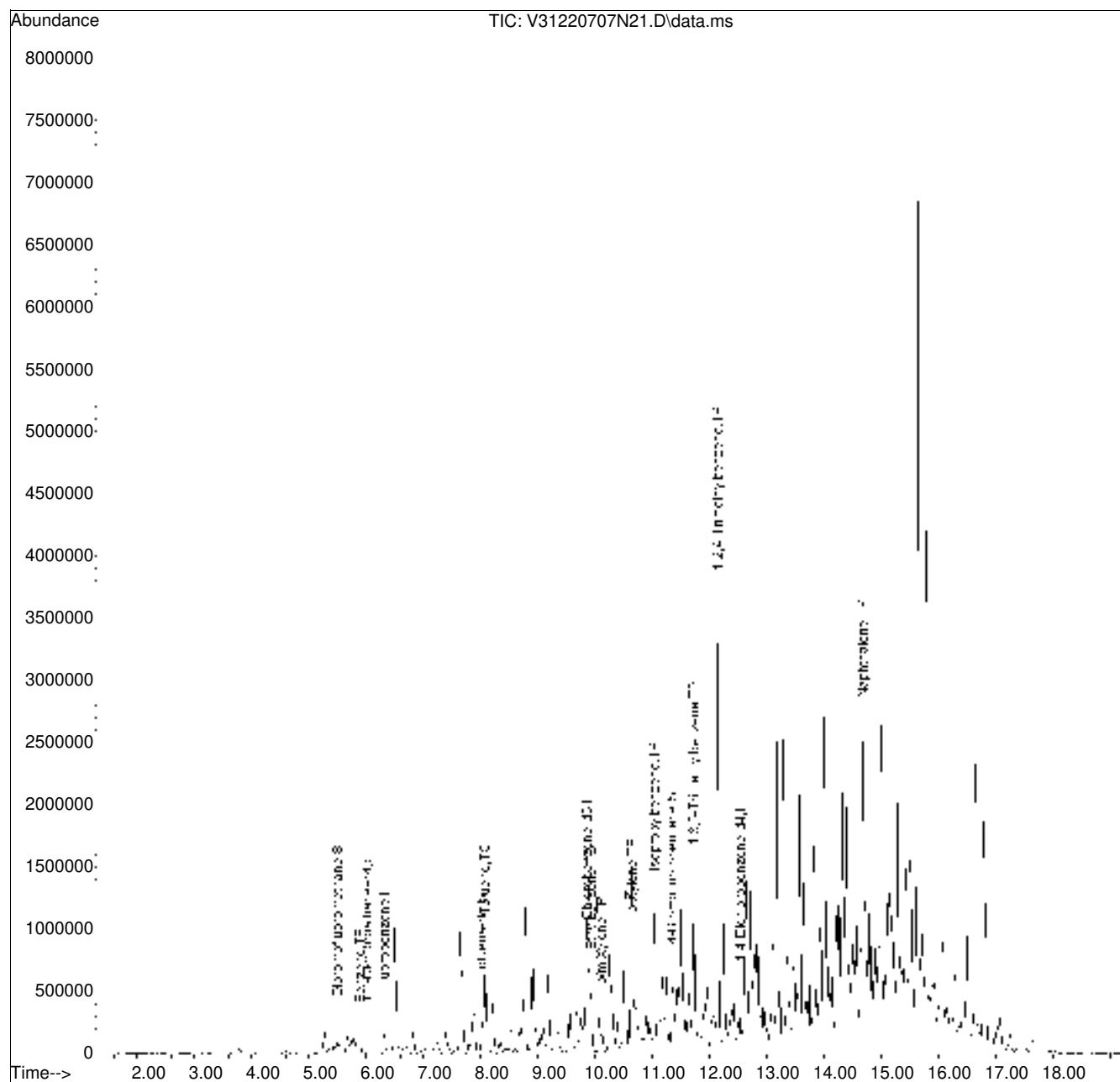
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N21.D
Acq On : 08 Jul 2022 01:52 am
Operator : VOA131:MKS
Sample : 12235873-12,31h,7.24,5,0.100,,a,r1b
Misc : WG1660428,ICAL19050
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 08 06:54:08 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

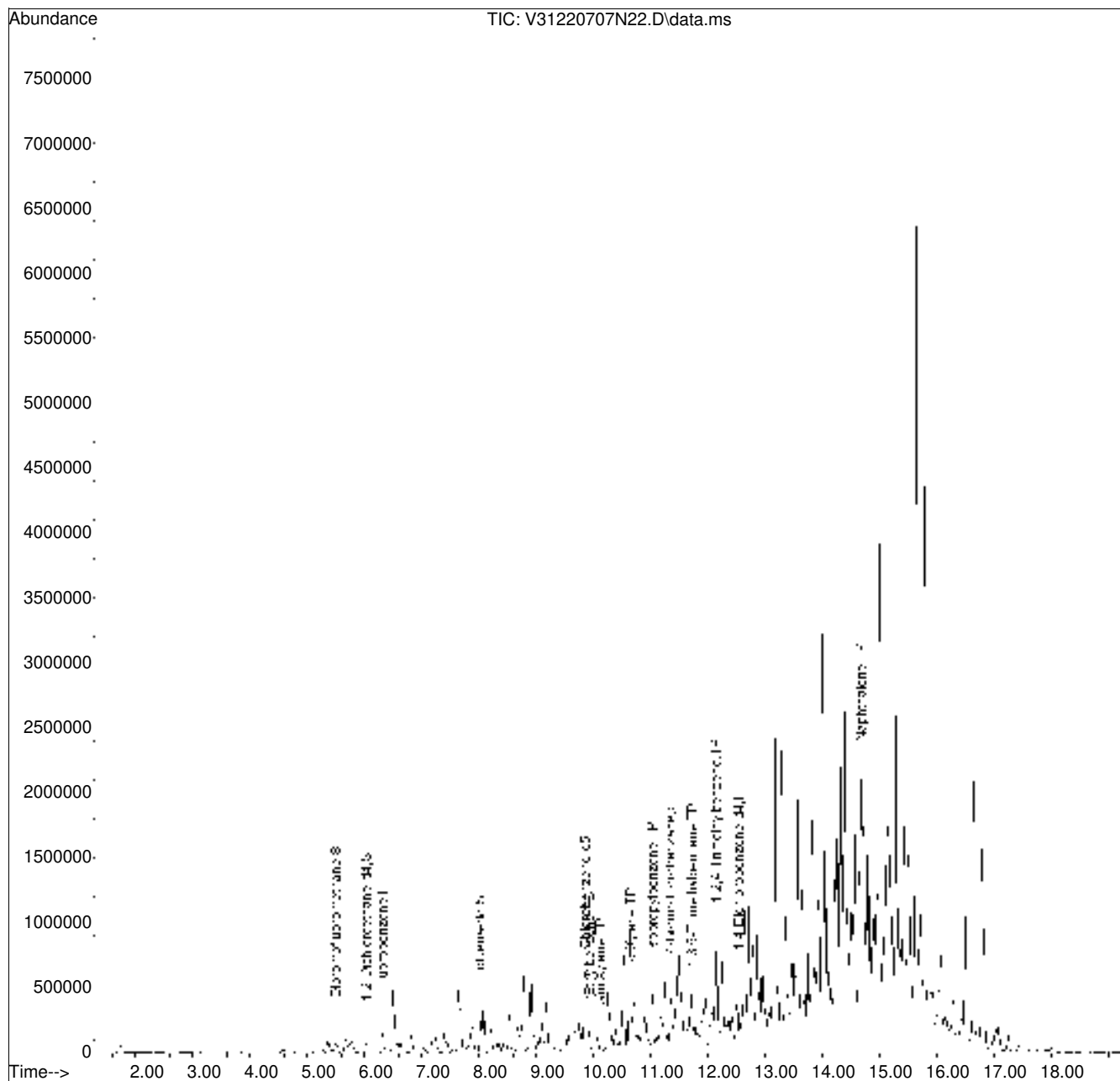


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N22.D
Acq On : 08 Jul 2022 02:16 am
Operator : VOA131:MKS
Sample : 12235873-13,31h,6.02,5,0.100,,a,r1b
Misc : WG1660428,ICAL19050
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 08 11:56:46 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

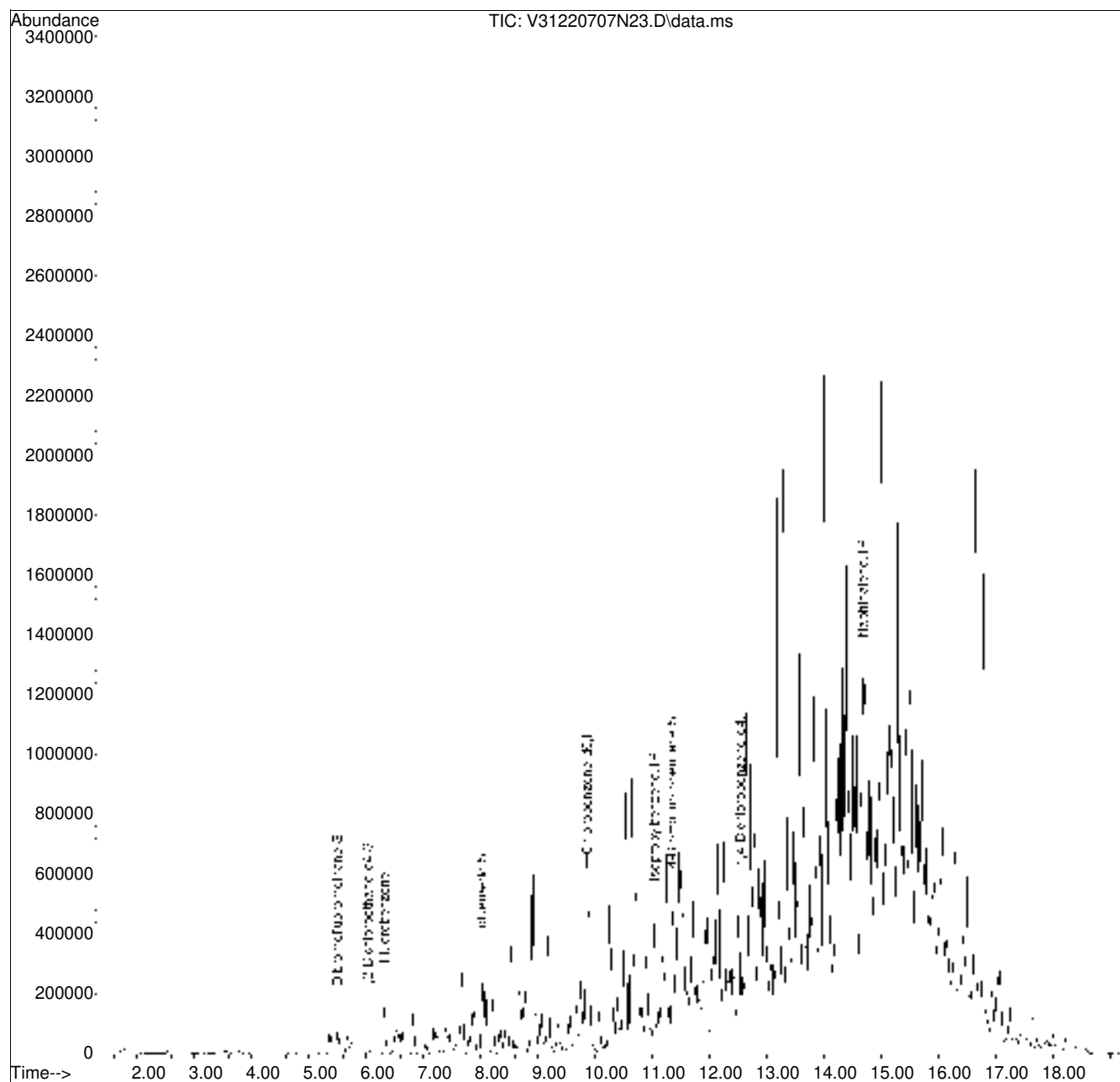


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N23.D
Acq On : 08 Jul 2022 02:39 am
Operator : VOA131:MKS
Sample : 12235873-14,31h,5.79,5,0.100,,a,r1b
Misc : WG1660428,ICAL19050
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 08 11:57:01 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•

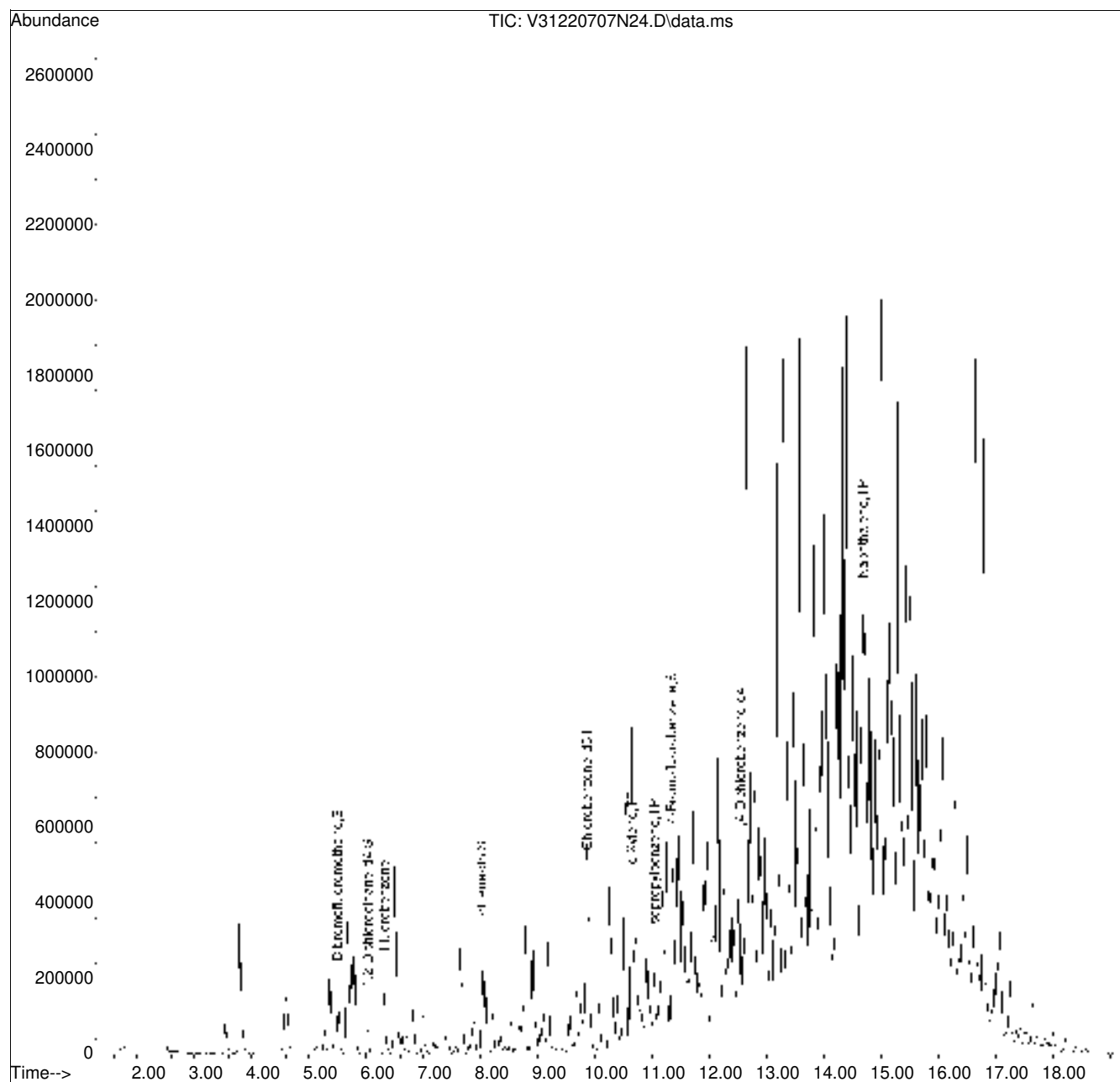


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220707N\
Data File : V31220707N24.D
Acq On : 08 Jul 2022 03:03 am
Operator : VOA131:MKS
Sample : 12235873-15, 31h, 6.09, 5, 0.100, , a, r1b
Misc : WG1660428, ICAL19050
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 08 11:57:09 2022
Quant Method : I:\VOLATILES\VOA131\2022\220707N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list07N\V31220707N01.D•





ANALYTICAL REPORT

Lab Number:	L2236236
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/12/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236236-01	PB-824-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:00	07/07/22
L2236236-02	PB-824-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:10	07/07/22
L2236236-03	PB-824-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:20	07/07/22
L2236236-04	PB-824-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:30	07/07/22
L2236236-05	PB-824-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:40	07/07/22
L2236236-06	PB-824-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:50	07/07/22
L2236236-07	PB-824-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:00	07/07/22
L2236236-08	PB-824-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:10	07/07/22
L2236236-09	PB-824-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:20	07/07/22
L2236236-10	PB-824-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:30	07/07/22
L2236236-11	PB-824-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:40	07/07/22
L2236236-12	PB-824-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:50	07/07/22
L2236236-13	PB-824-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:00	07/07/22
L2236236-14	PB-824-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:10	07/07/22
L2236236-15	PB-824-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:20	07/07/22
L2236236-16	PB-824-16-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:30	07/07/22
L2236236-17	PB-824-17-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:40	07/07/22
L2236236-18	PB-824-18-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:50	07/07/22
L2236236-19	PB-824-19-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:00	07/07/22
L2236236-20	PB-824-20-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:10	07/07/22
L2236236-21	PB-824-21-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:20	07/07/22
L2236236-22	PB-824-22-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:30	07/07/22
L2236236-23	PB-824-23-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:40	07/07/22
L2236236-24	PB-824-24-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:50	07/07/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236236-25	PB-824-25-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:00	07/07/22
L2236236-26	PB-824-26-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:10	07/07/22
L2236236-27	FB-070722-1	WATER	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236236-28	FB-070722-2	WATER	PHILADELPHIA, PA	07/07/22 14:05	07/07/22
L2236236-29	FB-070722-3	WATER	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236236-30	DUP-34	SOIL	PHILADELPHIA, PA	07/07/22 00:00	07/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Case Narrative (continued)

Report Submission

July 12, 2022: This final report includes the results of all requested analyses.

July 11, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2236236-10, -11, -13, and -14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2236236-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (155%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (157%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (182%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236236-24: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (180%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/12/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 13:53
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-02
 Client ID: PB-824-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 14:19
 Analyst: NLK
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
Toluene	ND		mg/kg	0.0012	0.00063	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-03
 Client ID: PB-824-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 14:45
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-04
 Client ID: PB-824-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 20:29
 Analyst: JC
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00051	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05
 Client ID: PB-824-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 20:01
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.00099	0.00054	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-06
 Client ID: PB-824-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 16:03
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-07
 Client ID: PB-824-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 19:33
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
Toluene	ND		mg/kg	0.00088	0.00048	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-08
 Client ID: PB-824-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 19:05
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00052	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-09
 Client ID: PB-824-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 18:36
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
Toluene	ND		mg/kg	0.00089	0.00048	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-10
 Client ID: PB-824-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 19:57
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0085	1
Toluene	ND		mg/kg	0.051	0.028	1
Ethylbenzene	0.0084	J	mg/kg	0.051	0.0072	1
Isopropylbenzene	0.11		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	0.071	J	mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	155	Q	70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-11
 Client ID: PB-824-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 09:39
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	ND		mg/kg	0.059	0.0084	1
Isopropylbenzene	0.027	J	mg/kg	0.059	0.0065	1
1,3,5-Trimethylbenzene	0.037	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.24		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-12
 Client ID: PB-824-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 09:13
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-13
 Client ID: PB-824-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:05
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.032	1
Ethylbenzene	0.016	J	mg/kg	0.060	0.0084	1
Isopropylbenzene	0.16		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.39		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.78		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	157	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-14
 Client ID: PB-824-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:31
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
Isopropylbenzene	0.076		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	0.045	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.29		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	182	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-15
 Client ID: PB-824-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 10:57
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-16
 Client ID: PB-824-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 12:45
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-17
 Client ID: PB-824-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 11:49
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.00016	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-18
 Client ID: PB-824-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 12:15
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-19
 Client ID: PB-824-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 12:41
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:07
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-21
 Client ID: PB-824-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:33
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 13:59
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-23
 Client ID: PB-824-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 14:25
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-24
 Client ID: PB-824-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 14:51
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0092	1
Toluene	ND		mg/kg	0.056	0.030	1
Ethylbenzene	0.50		mg/kg	0.056	0.0078	1
Isopropylbenzene	0.68		mg/kg	0.056	0.0060	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	6.9		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	180	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-25
 Client ID: PB-824-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 15:17
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 15:43
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-27
 Client ID: FB-070722-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 10:40
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-28
 Client ID: FB-070722-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-29
 Client ID: FB-070722-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 11:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-30
 Client ID: DUP-34
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/10/22 16:09
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/08/22 09:22
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 27-29 Batch: WG1660783-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 11:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,06 Batch: WG1661134-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/09/22 11:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10 Batch: WG1661142-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/10/22 16:43
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-05,07-09 Batch: WG1661196-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/10/22 08:32
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12,15,17-23,25-26,30 Batch: WG1661243-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/10/22 08:32
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11,13-14,24 Batch: WG1661245-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/12/22 12:19
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1661850-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 27-29 Batch: WG1660783-3 WG1660783-4								
Methyl tert butyl ether	88		89		63-130	1		20
Benzene	93		94		70-130	1		20
Toluene	90		90		70-130	0		20
Ethylbenzene	88		88		70-130	0		20
Isopropylbenzene	86		85		70-130	1		20
1,3,5-Trimethylbenzene	84		83		64-130	1		20
1,2,4-Trimethylbenzene	83		84		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		107		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	95		93		70-130
Dibromofluoromethane	105		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,06 Batch: WG1661134-3 WG1661134-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	99		98		70-130	1		30
Toluene	96		93		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
Isopropylbenzene	102		96		70-130	6		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		95		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	108		105		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10 Batch: WG1661142-3 WG1661142-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	99		98		70-130	1		30
Toluene	96		93		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
Isopropylbenzene	102		96		70-130	6		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		95		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		108		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	108		104		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-05,07-09 Batch: WG1661196-3 WG1661196-4								
Methyl tert butyl ether	107		108		66-130	1		30
Benzene	107		108		70-130	1		30
Toluene	102		102		70-130	0		30
Ethylbenzene	101		102		70-130	1		30
Isopropylbenzene	102		103		70-130	1		30
1,3,5-Trimethylbenzene	99		99		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	108		108		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 12,15,17-23,25-26,30 Batch: WG1661243-3 WG1661243-4								
Methyl tert butyl ether	95		94		66-130	1		30
Benzene	101		100		70-130	1		30
Toluene	99		99		70-130	0		30
Ethylbenzene	102		102		70-130	0		30
Isopropylbenzene	102		102		70-130	0		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	115		114		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11,13-14,24 Batch: WG1661245-3 WG1661245-4								
Methyl tert butyl ether	95		94		66-130	1		30
Benzene	101		100		70-130	1		30
Toluene	99		99		70-130	0		30
Ethylbenzene	102		102		70-130	0		30
Isopropylbenzene	102		102		70-130	0		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	115		114		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	105		107		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1661850-3 WG1661850-4								
Methyl tert butyl ether	94		91		66-130	3		30
Benzene	95		91		70-130	4		30
Toluene	89		85		70-130	5		30
Ethylbenzene	90		86		70-130	5		30
Isopropylbenzene	85		82		70-130	4		30
1,3,5-Trimethylbenzene	86		81		70-130	6		30
1,2,4-Trimethylbenzene	84		81		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		91		70-130
Toluene-d8	95		96		70-130
4-Bromofluorobenzene	84		83		70-130
Dibromofluoromethane	105		106		70-130

SEMIVOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:07
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	153	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-02
 Client ID: PB-824-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:30
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.17	0.021	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-03
 Client ID: PB-824-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 14:54
 Analyst: CMM
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	151	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-04
 Client ID: PB-824-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:17
 Analyst: CMM
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	160	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05
 Client ID: PB-824-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:40
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	156	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-06
 Client ID: PB-824-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:04
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	155	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-07
 Client ID: PB-824-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:27
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	150	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-08
 Client ID: PB-824-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:51
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-09
 Client ID: PB-824-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:14
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-10
 Client ID: PB-824-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:37
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.080	J	mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	144	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-11
 Client ID: PB-824-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:48
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.14	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-12
 Client ID: PB-824-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:11
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	76		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-13
 Client ID: PB-824-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:34
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.15	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	122	Q	23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-14
 Client ID: PB-824-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:58
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.11	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	74		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-15
 Client ID: PB-824-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:21
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	172	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-16
 Client ID: PB-824-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:44
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-17
 Client ID: PB-824-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:08
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	162	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-18
 Client ID: PB-824-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:31
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	152	Q	23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-19
 Client ID: PB-824-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:54
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	140	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:18
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	175	Q	23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-21
 Client ID: PB-824-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 15:44
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	94		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:06
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	91		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-23
 Client ID: PB-824-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:28
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-24
 Client ID: PB-824-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 16:51
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	1.8		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-25
 Client ID: PB-824-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:13
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:36
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.064	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	104		30-120
4-Terphenyl-d14	100		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-27
 Client ID: FB-070722-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 20:40
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	33		15-120
4-Terphenyl-d14	39	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-28
 Client ID: FB-070722-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 20:56
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	31		23-120
2-Fluorobiphenyl	32		15-120
4-Terphenyl-d14	37	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-29
 Client ID: FB-070722-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/08/22 21:12
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	34		15-120
4-Terphenyl-d14	41		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-30
 Client ID: DUP-34
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 17:58
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
 Analytical Date: 07/12/22 11:59
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 27-29 Batch: WG1660313-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	26		23-120
2-Fluorobiphenyl	27		15-120
4-Terphenyl-d14	25	Q	41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/09/22 12:57
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 07/08/22 08:56

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-20 Batch: WG1660321-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	121	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/09/22 14:36
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 21-26,30 Batch: WG1660333-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	105		30-120
4-Terphenyl-d14	127	Q	18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 27-29 Batch: WG1660313-2 WG1660313-3								
Naphthalene	64		64		40-140	0		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	31		31		23-120
2-Fluorobiphenyl	31		32		15-120
4-Terphenyl-d14	35	Q	36	Q	41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-20 Batch: WG1660321-2 WG1660321-3								
Naphthalene	68		76		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	145	Q	23-120
2-Fluorobiphenyl	57		72		30-120
4-Terphenyl-d14	64		87		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236236

Report Date: 07/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-26,30 Batch: WG1660333-2 WG1660333-3								
Naphthalene	76		70		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	74		67		23-120
2-Fluorobiphenyl	87		79		30-120
4-Terphenyl-d14	102		90		18-120

INORGANICS & MISCELLANEOUS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-01
 Client ID: PB-824-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-02

Date Collected: 07/07/22 09:10

Client ID: PB-824-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-03
 Client ID: PB-824-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-04

Date Collected: 07/07/22 09:30

Client ID: PB-824-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-05
 Client ID: PB-824-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-06

Date Collected: 07/07/22 09:50

Client ID: PB-824-06-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-07
 Client ID: PB-824-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-08
 Client ID: PB-824-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-09

Date Collected: 07/07/22 10:20

Client ID: PB-824-09-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-10

Date Collected: 07/07/22 10:30

Client ID: PB-824-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-11

Date Collected: 07/07/22 10:40

Client ID: PB-824-11-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-12

Date Collected: 07/07/22 10:50

Client ID: PB-824-12-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-13

Client ID: PB-824-13-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-14
 Client ID: PB-824-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-15

Date Collected: 07/07/22 11:20

Client ID: PB-824-15-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-16

Date Collected: 07/07/22 11:30

Client ID: PB-824-16-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-17

Date Collected: 07/07/22 11:40

Client ID: PB-824-17-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-18

Date Collected: 07/07/22 11:50

Client ID: PB-824-18-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-19

Client ID: PB-824-19-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:00

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-20
 Client ID: PB-824-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	07/08/22 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-21

Client ID: PB-824-21-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:20

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-22
 Client ID: PB-824-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-23

Date Collected: 07/07/22 12:40

Client ID: PB-824-23-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-24

Date Collected: 07/07/22 12:50

Client ID: PB-824-24-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Project Number:** 200.00135.006**Lab Number:** L2236236**Report Date:** 07/12/22**SAMPLE RESULTS**

Lab ID: L2236236-25

Client ID: PB-824-25-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00

Date Received: 07/07/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-26
 Client ID: PB-824-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

SAMPLE RESULTS

Lab ID: L2236236-30
 Client ID: DUP-34
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/08/22 11:07	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1660328-1 QC Sample: L2236236-01 Client ID: PB-824-01-SS01						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-26,30 QC Batch ID: WG1660331-1 QC Sample: L2236254-01 Client ID: DUP Sample						
Solids, Total	85.2	80.5	%	6		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-01B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-01C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-01D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-01E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-02B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-02C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-02D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-02E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-03B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-03C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-03D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-03E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-04B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-04C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-04D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-04E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-05B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-05C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-05D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-05E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-06B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-06C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-06D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-06E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-07A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-07B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-07C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-07D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-07E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-08A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-08B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-08C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-08D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-08E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-09A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236236-09B	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-09C	Vial water preserved	A	NA		3.2	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-09D	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2236236-09E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2236236-10A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-10B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-10C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-10D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-10E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-11A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-11B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-11C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-11D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-11E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-12A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-12B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-12C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-12D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-12E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-13A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-13B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-13C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-13D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-13E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-14A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-14B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-14C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-14D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-14E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-15A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-15B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-15C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-15D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-15E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-16A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-16B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-16C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-16D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-16E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-17A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-17B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-17C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-17D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-17E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-18A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-18B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-18C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-18D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-18E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-19A	Vial MeOH preserved	B	NA		3.1	Y	Absent		PA-8260HLW(14)
L2236236-19B	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-19C	Vial water preserved	B	NA		3.1	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-19D	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2236236-19E	Glass 120ml/4oz unpreserved	B	NA		3.1	Y	Absent		PA-PAH(14)
L2236236-20A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-20B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-20C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-20D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-20E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-21A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-21B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-21C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-21D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-21E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-22A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-22B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-22C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-22D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-22E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-23A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-23B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-23C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-23D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-23E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-24A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-24B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-24C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-24D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-24E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-25A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-25B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-25C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-25D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-25E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-26A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-26B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-26C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-26D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-26E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2236236-27A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-27B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-27C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236236**Project Number:** 200.00135.006**Report Date:** 07/12/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236236-27D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-27E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-28A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-28D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-28E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-29A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260(14)
L2236236-29D	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-29E	Amber 250ml unpreserved	C	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2236236-30A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2236236-30B	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-30C	Vial water preserved	C	NA		2.3	Y	Absent	08-JUL-22 08:36	PA-8260HLW(14)
L2236236-30D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2236236-30E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236236
Report Date: 07/12/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236236

Project Number: 200.00135.006

Report Date: 07/12/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY PAGE 1 OF 3



Westborough, MA Mansfield, MA
 TEL: 508-890-9700 TEL: 508-822-9000
 FAX: 508-890-9193 FAX: 508-822-3284

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
2-DAY
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 7/7/22 ALPHA Job #: L2236236

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS												Sample Specific Comments	TOTAL # BOTTLES
		Date	Time			1	2	3	4	5	6	7	8	9	10	11	12		
36236-01	PB-824-01-5501	7/7/22	900	S	an	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	02 PB-824-02-5501		910			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	03 PB-824-03-5501		920			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	04 PB-824-04-5501		930			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Time: 930
	05 PB-824-05-5501		940			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Time: 940
	06 PB-824-06-5501		950			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	07 PB-824-07-5501		1000			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	08 PB-824-08-5501		1010			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	09 PB-824-09-5501		1020			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	10 PB-824-10-5501		1030			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Short list 4

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
36236-01	PB-824-01-5501	7/7/22	900	S	an
	02 PB-824-02-5501		910		
	03 PB-824-03-5501		920		
	04 PB-824-04-5501		930		
	05 PB-824-05-5501		940		
	06 PB-824-06-5501		950		
	07 PB-824-07-5501		1000		
	08 PB-824-08-5501		1010		
	09 PB-824-09-5501		1020		
	10 PB-824-10-5501		1030		

Container Type	-	G	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: 7/7/22
 Received By: *[Signature]* Date/Time: 7/7/22 145
7/7/22 *7/7/22*

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA
TEL: 508-856-9220
FAX: 508-856-9193

Mansfield, MA
TEL: 508-473-9300
FAX: 508-422-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200 00135 006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

2-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hilco-global.com

Date Rec'd in Lab: 7/7/22

ALPHA Job #: 2236236

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

Short list 4

Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
20236-11 PB-824-11-5501	7/7/22	1040	S	CL																				
12 PB-824-12-5501		1050																						
13 PB-824-13-5501		1100																						
14 PB-824-14-5501		1110																						
15 PB-824-15-5501		1120																						
16 PB-824-16-5501		1150																						
17 PB-824-17-5501		1140																						
18 PB-824-18-5501		1150																						
19 PB-824-19-5501		1200																						
20 PB-824-20-5501		1210																						

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: <i>[Signature]</i>	Date/Time: 7/7/22	Received By: <i>[Signature]</i>	Date/Time: 7/7/22
<i>[Signature]</i>	7/7/22 12:00	<i>[Signature]</i>	7/7/22 2:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO. 100-001 (REV. 12/10)

GLARC 7/10/22 0120
GLARC 7/7/22 2350

CHAIN OF CUSTODY

PAGE 3 OF 3



Westborough, MA
TEL: 508-895-9222
FAX: 508-898-9133

Mansfield, MA
TEL: 508-872-5000
FAX: 508-872-3288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Fax: _____
Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
36236-21	PB-824-21-5501	7/7/22	1220	S	an
22	PB-824-22-5501		1230		
23	PB-824-23-5501		1240		
24	PB-824-24-5501		1250		
25	PB-824-25-5501		1300		
26	PB-824-26-5501		1310		
27	FB-070722-1		1400	W	
28	FB-070722-2		1405		
29	FB-070722-3		1410		
30	DUP-34			S	

Turn-Around Time

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: **2-DAY**

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Date Rec'd in Lab: 7/7/22 ALPHA Job #: 62236236

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 3582

ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

Short list 4	ANALYSIS												TOTAL # BOTTLES
	1	2	3	4	5	6	7	8	9	10	11	12	
36236-21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
28	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
29	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
30	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

Sample Specific Comments

Container Type: _____ Preservative: _____

Relinquished By: <i>[Signature]</i>	Date/Time: 7/7/22	Received By: <i>[Signature]</i>	Date/Time: 7/7/22 14:55
<i>[Signature]</i>	7/7/22 14:00	<i>[Signature]</i>	7-7-22
<i>[Signature]</i>	7/7/22	<i>[Signature]</i>	7/7/22 09:00

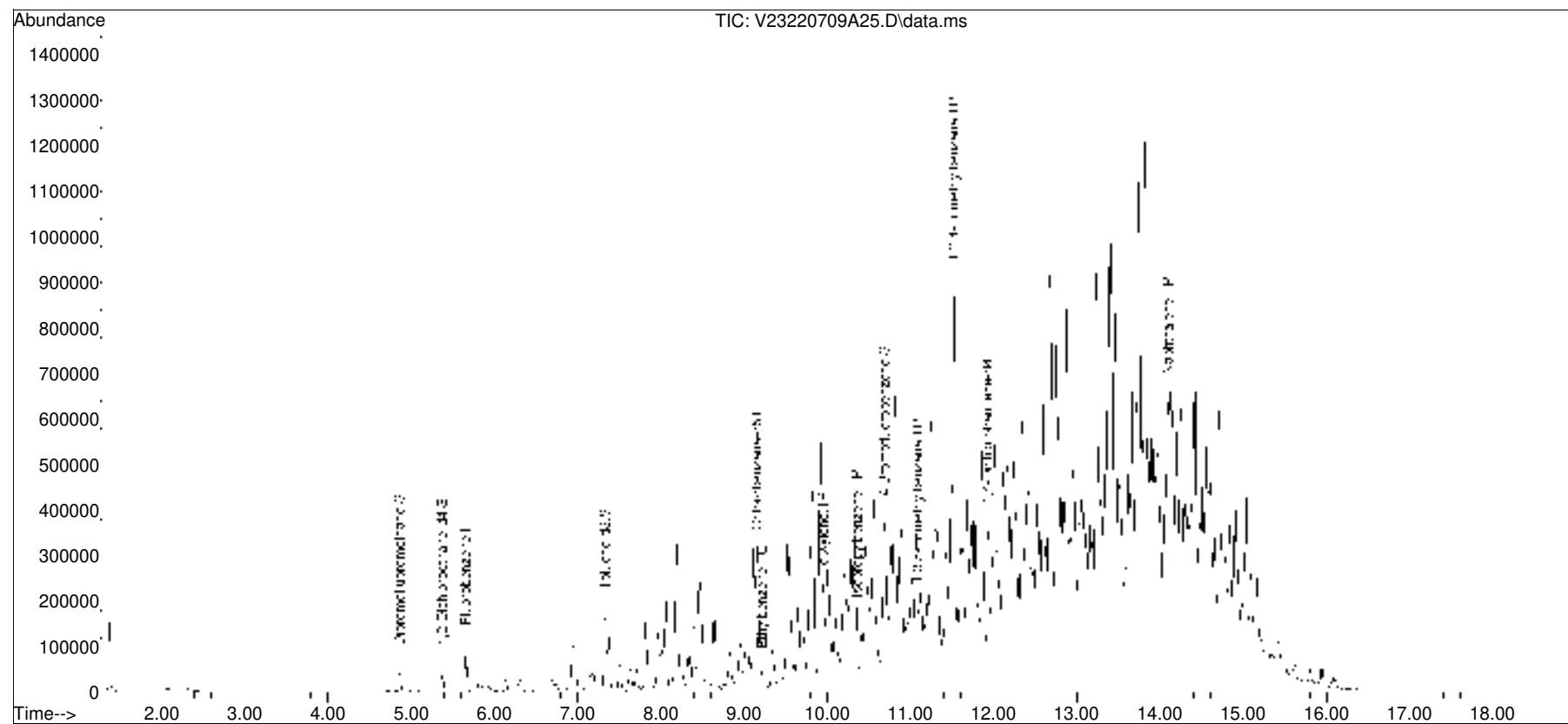
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220709A\
Data File : V23220709A25.D
Acq On : 09 Jul 2022 07:57 pm
Operator : VOA123:NLK
Sample : L2236236-10,31H,6.55,5,0.100,,A,R1D
Misc : WG1661142,ICAL19133
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 10 12:26:55 2022
Quant Method : I:\VOLATILES\VOA123\2022\220709A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V23220709A02.D•

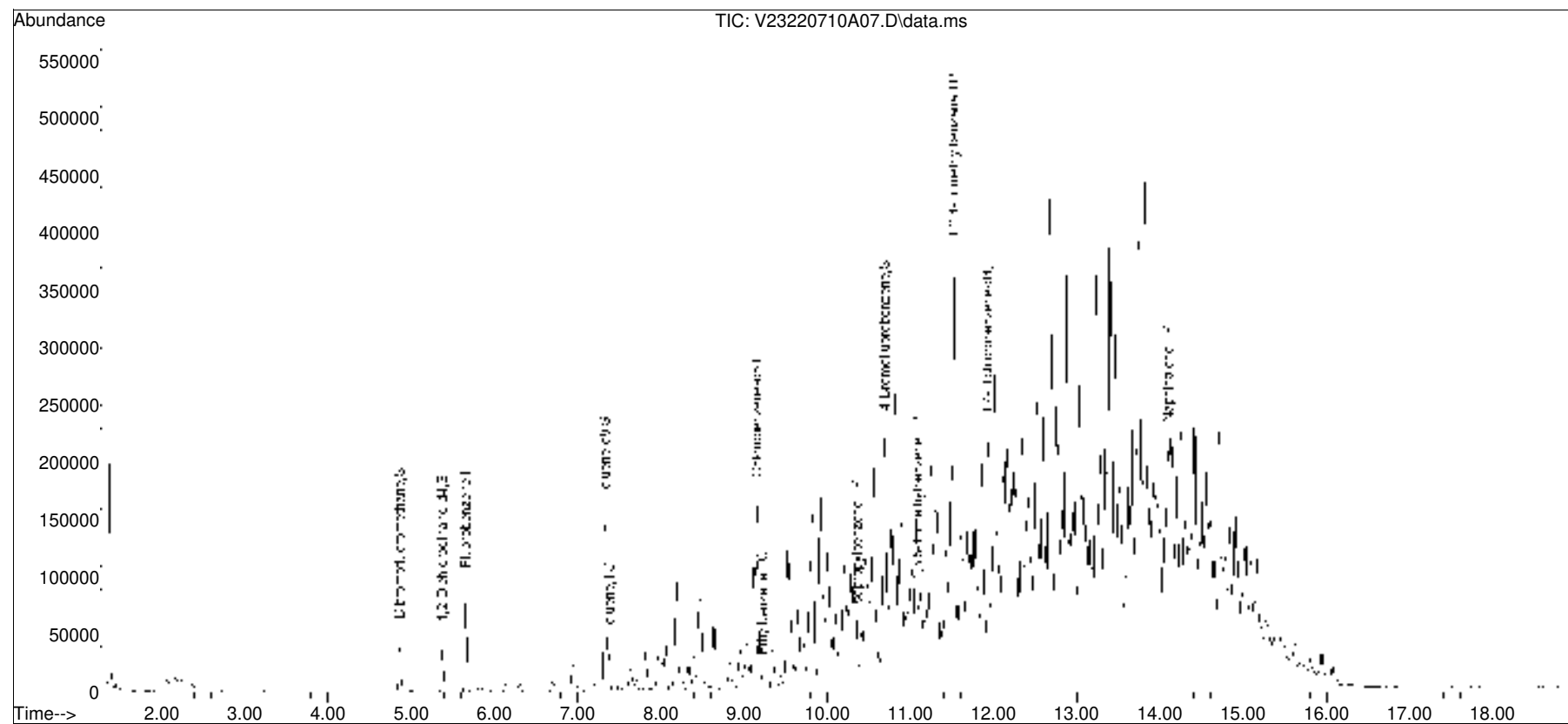


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
 Data File : V23220710A07.D
 Acq On : 10 Jul 2022 09:39 am
 Operator : VOA123:JC
 Sample : L2236236-11,31H,6.01,5,0.100,,A,R1D
 Misc : WG1661245,ICAL19133
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 11 06:23:50 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 28 08:23:04 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•

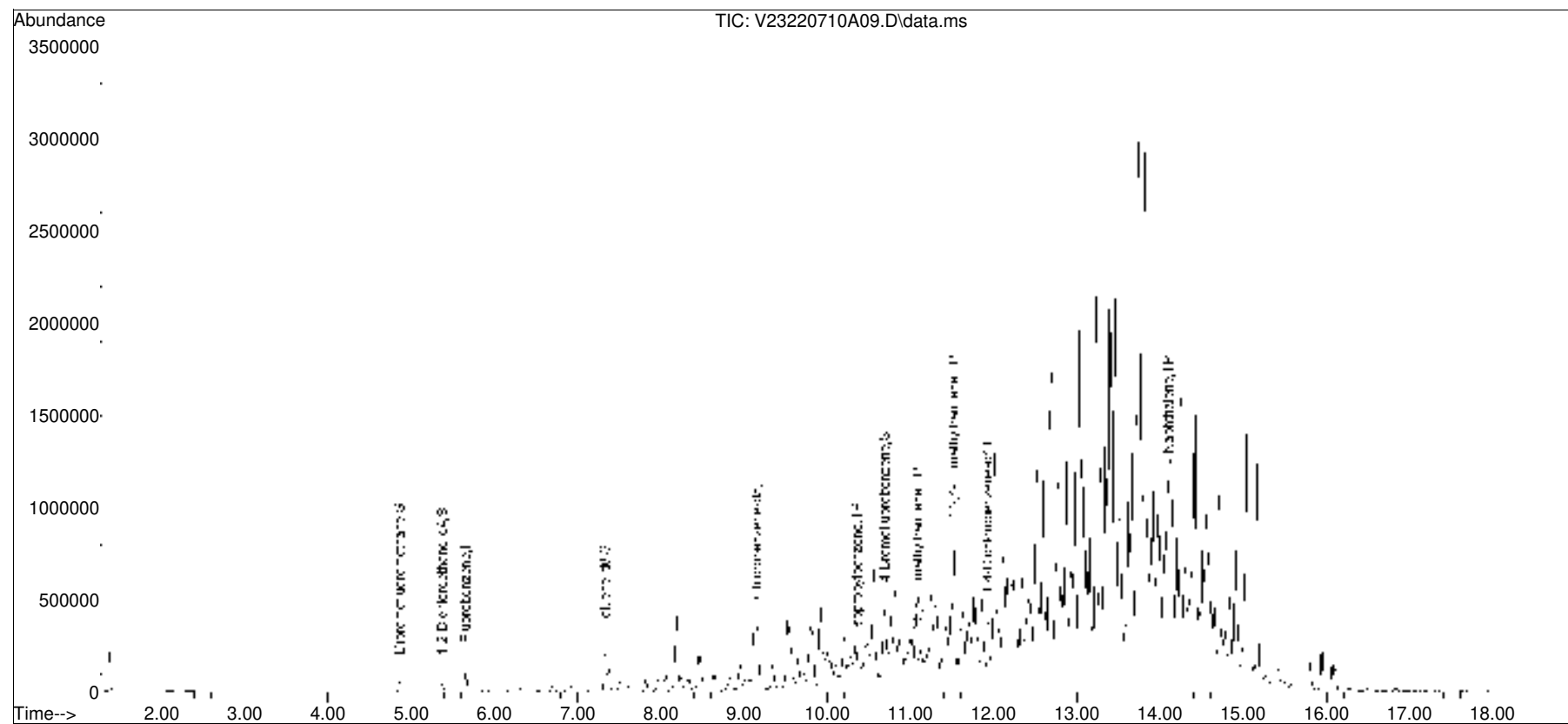


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
Data File : V23220710A09.D
Acq On : 10 Jul 2022 10:31 am
Operator : VOA123:JC
Sample : L2236236-14,31H,5.86,5,0.100,,A,R1D
Misc : WG1661245,ICAL19133
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 11 06:23:58 2022
Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•

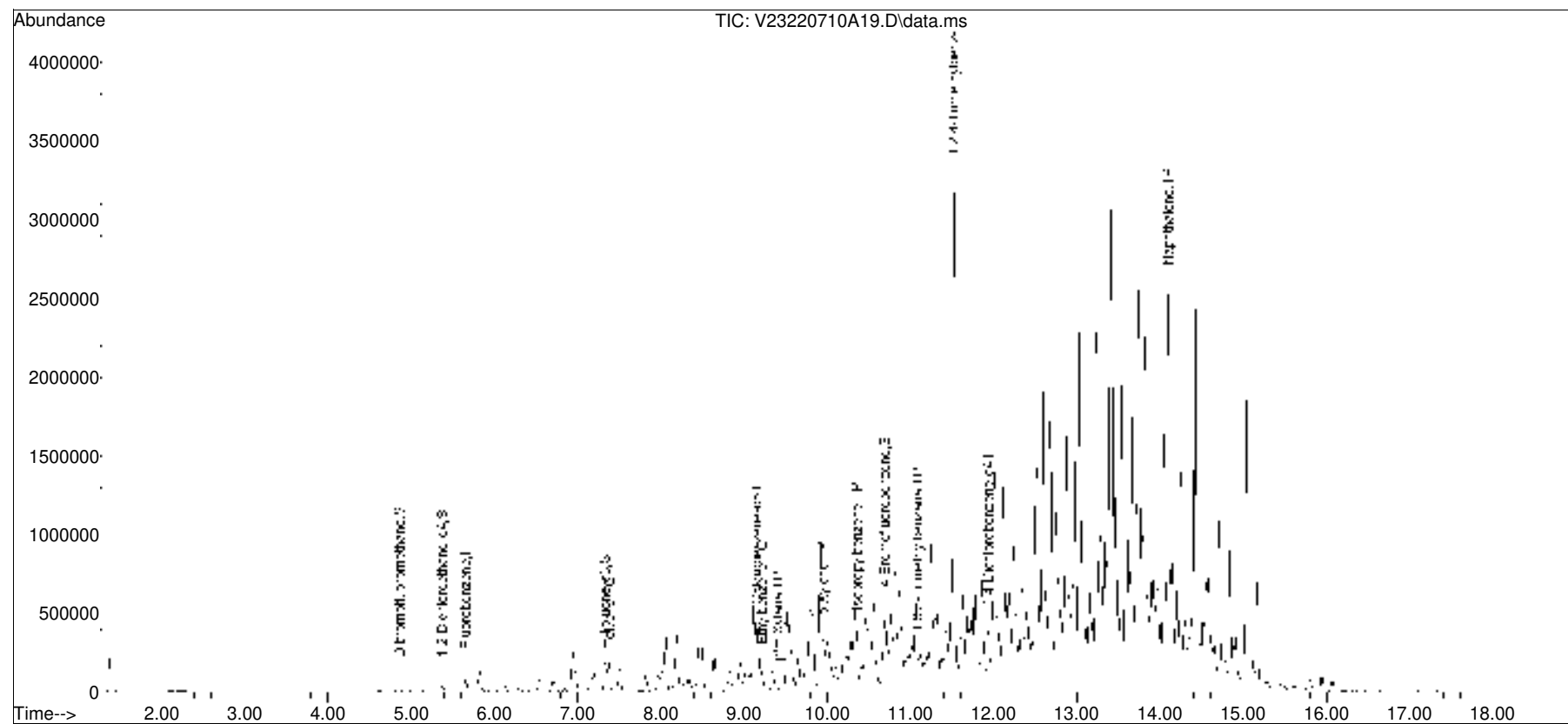


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220710A\
Data File : V23220710A19.D
Acq On : 10 Jul 2022 02:51 pm
Operator : VOA123:JC
Sample : L2236236-24, 31H, 6.07, 5, 0.100, , A, R1D
Misc : WG1661245, ICAL19133
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 11 06:24:38 2022
Quant Method : I:\VOLATILES\VOA123\2022\220710A\V123_220627A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 28 08:23:04 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V23220710A01.D•





ANALYTICAL REPORT

Lab Number:	L2236264
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	07/14/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236264-01	PB-823-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:10	07/07/22
L2236264-02	PB-823-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:20	07/07/22
L2236264-03	PB-823-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:30	07/07/22
L2236264-04	PB-823-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:40	07/07/22
L2236264-05	PB-823-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 09:50	07/07/22
L2236264-06	PB-823-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:00	07/07/22
L2236264-07	PB-823-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:10	07/07/22
L2236264-08	PB-823-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:20	07/07/22
L2236264-09	PB-823-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:30	07/07/22
L2236264-10	PB-823-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:40	07/07/22
L2236264-11	PB-823-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 10:50	07/07/22
L2236264-12	PB-823-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:00	07/07/22
L2236264-13	PB-823-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:10	07/07/22
L2236264-14	PB-823-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:20	07/07/22
L2236264-15	PB-823-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 11:30	07/07/22
L2236264-16	PB-825-01-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:30	07/07/22
L2236264-17	PB-825-02-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:40	07/07/22
L2236264-18	PB-825-03-SS01	SOIL	PHILADELPHIA, PA	07/07/22 12:50	07/07/22
L2236264-19	PB-825-04-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:00	07/07/22
L2236264-20	PB-825-05-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:10	07/07/22
L2236264-21	PB-825-06-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:20	07/07/22
L2236264-22	PB-825-07-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:30	07/07/22
L2236264-23	PB-825-08-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:40	07/07/22
L2236264-24	PB-825-09-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:45	07/07/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236264-25	PB-825-10-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:50	07/07/22
L2236264-26	PB-825-11-SS01	SOIL	PHILADELPHIA, PA	07/07/22 13:55	07/07/22
L2236264-27	PB-825-12-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236264-28	PB-825-13-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:05	07/07/22
L2236264-29	PB-825-14-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236264-30	PB-825-15-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:15	07/07/22
L2236264-31	PB-825-16-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:20	07/07/22
L2236264-32	PB-825-17-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:25	07/07/22
L2236264-33	PB-825-18-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:30	07/07/22
L2236264-34	PB-825-19-SS01	SOIL	PHILADELPHIA, PA	07/07/22 14:35	07/07/22
L2236264-35	FB-070722-4	WATER	PHILADELPHIA, PA	07/07/22 14:00	07/07/22
L2236264-36	FB-070722-5	WATER	PHILADELPHIA, PA	07/07/22 14:10	07/07/22
L2236264-37	FB-070722-6	WATER	PHILADELPHIA, PA	07/07/22 14:20	07/07/22
L2236264-38	DUP-36	SOIL	PHILADELPHIA, PA	07/07/22 00:00	07/07/22
L2236264-39	TB-070722	WATER	PHILADELPHIA, PA	07/07/22 00:00	07/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative (continued)

Report Submission

July 14, 2022: This final report includes the results of all requested analyses.

July 13, 2022: This is a preliminary report.

July 12, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2236264-01, -04, -05, and -30: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2236264-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (176%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (174%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (375%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-30: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (147%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-32: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (131%) and 4-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Case Narrative (continued)

bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-33D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2236264-33D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2236264-34: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (256%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/14/22

ORGANICS

VOLATILES



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 02:13
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	ND		mg/kg	0.032	0.011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	176	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-02
 Client ID: PB-823-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:01
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00048	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-03
 Client ID: PB-823-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:24
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-04
 Client ID: PB-823-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 02:36
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	ND		mg/kg	0.034	0.011	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	174	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-05
 Client ID: PB-823-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 18:29
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	ND		mg/kg	0.034	0.011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-06
 Client ID: PB-823-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 20:47
 Analyst: NLK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00069	0.00023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-07
 Client ID: PB-823-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 21:10
 Analyst: NLK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 21:34
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00060	0.00020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/09/22 18:06
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00057	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-10
 Client ID: PB-823-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/08/22 22:21
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00059	0.00020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-11
 Client ID: PB-823-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 05:10
 Analyst: JC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00051	0.00017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-12
 Client ID: PB-823-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 04:44
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00052	0.00017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13
 Client ID: PB-823-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 14:08
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00058	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-14
 Client ID: PB-823-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 14:34
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-15
 Client ID: PB-823-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 15:01
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-16
 Client ID: PB-825-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 00:06
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	0.018		mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.021		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.20		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	375	Q	70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-17
 Client ID: PB-825-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 15:56
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	ND		mg/kg	0.00077	0.00025	1
Toluene	ND		mg/kg	0.0015	0.00083	1
Ethylbenzene	ND		mg/kg	0.0015	0.00022	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-18
 Client ID: PB-825-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 16:22
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00065	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-19
 Client ID: PB-825-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 16:49
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00053	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-20
 Client ID: PB-825-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 17:16
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.0011		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0012		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0022		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.0025		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-21
 Client ID: PB-825-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 17:42
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-22
 Client ID: PB-825-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 18:09
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
Toluene	ND		mg/kg	0.0012	0.00063	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-23
 Client ID: PB-825-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 21:18
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00074	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-24
 Client ID: PB-825-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 21:44
 Analyst: AJK
 Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.016	0.0016	1
Benzene	ND		mg/kg	0.0039	0.0013	1
Toluene	ND		mg/kg	0.0078	0.0042	1
Ethylbenzene	0.0057	J	mg/kg	0.0078	0.0011	1
Isopropylbenzene	ND		mg/kg	0.0078	0.00085	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.016	0.0015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.016	0.0026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-25
 Client ID: PB-825-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 18:36
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00059	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 19:03
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-27
 Client ID: PB-825-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 10:25
 Analyst: MKS
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00067	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00013	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-28
 Client ID: PB-825-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 19:57
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.00022	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-29
 Client ID: PB-825-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 20:24
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	0.0032		mg/kg	0.0014	0.00020	1
Isopropylbenzene	0.0090		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.039		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.12		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-30
 Client ID: PB-825-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:15
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/12/22 20:51
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.013	J	mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	0.018	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	1.4		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.016	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	147	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-31
 Client ID: PB-825-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 01:30
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00070	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0010	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00030	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-32
 Client ID: PB-825-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 21:59
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.098		mg/kg	0.031	0.010	1
Toluene	0.25		mg/kg	0.062	0.034	1
Ethylbenzene	3.6		mg/kg	0.062	0.0088	1
Isopropylbenzene	1.6		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	15.		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	160	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-33 D
 Client ID: PB-825-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 06:13
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.27	0.027	2
Benzene	ND		mg/kg	0.067	0.022	2
Toluene	ND		mg/kg	0.13	0.073	2
Ethylbenzene	0.10	J	mg/kg	0.13	0.019	2
Isopropylbenzene	0.62		mg/kg	0.13	0.015	2
1,3,5-Trimethylbenzene	4.9		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	6.0		mg/kg	0.27	0.045	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:09
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	0.19		mg/kg	0.062	0.034	1
Ethylbenzene	7.5		mg/kg	0.062	0.0087	1
Isopropylbenzene	5.9		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	18.		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	256	Q	70-130
Dibromofluoromethane	80		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34 D
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 05:45
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	42.		mg/kg	1.2	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	90		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-35
 Client ID: FB-070722-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:04
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	119		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-36
 Client ID: FB-070722-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:29
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-37
 Client ID: FB-070722-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 10:55
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-38
 Client ID: DUP-36
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/22 01:58
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-39
 Client ID: TB-070722
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/14/22 11:20
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03,06-08,10 Batch: WG1660939-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/08/22 19:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04 Batch: WG1660941-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 15:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1661235-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/09/22 15:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1661236-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/11/22 23:24
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11-12 Batch: WG1662051-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/12/22 13:41
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s):				30	Batch: WG1662075-5
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/12/22 13:41
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 13-15,17-26,28-29 Batch: WG1662076-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/12/22 21:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,31,38 Batch: WG1662235-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/12/22 21:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 33-34 Batch: WG1662236-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/13/22 09:06
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 27 Batch: WG1662358-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/14/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 34 Batch: WG1662882-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/22 12:48
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 32 Batch: WG1662896-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/14/22 09:38
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 35-37,39 Batch: WG1662938-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03,06-08,10 Batch: WG1660939-3 WG1660939-4								
Benzene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04 Batch: WG1660941-3 WG1660941-4								
Benzene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		81		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	89		90		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 Batch: WG1661235-3 WG1661235-4								
Benzene	90		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		77		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	93		92		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1661236-3 WG1661236-4								
Benzene	90		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	76		77		70-130
Toluene-d8	98		95		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	93		92		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11-12 Batch: WG1662051-3 WG1662051-4								
Benzene	98		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	75		75		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	82		82		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 30 Batch: WG1662075-3 WG1662075-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	88		88		70-130	0		30
Toluene	89		89		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	82		81		70-130	1		30
1,3,5-Trimethylbenzene	83		82		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	106		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 13-15,17-26,28-29 Batch: WG1662076-3 WG1662076-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	88		88		70-130	0		30
Toluene	89		89		70-130	0		30
Ethylbenzene	87		86		70-130	1		30
Isopropylbenzene	82		81		70-130	1		30
1,3,5-Trimethylbenzene	83		82		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	106		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,31,38 Batch: WG1662235-3 WG1662235-4								
Methyl tert butyl ether	100		101		66-130	1		30
Benzene	99		100		70-130	1		30
Toluene	101		102		70-130	1		30
Ethylbenzene	99		101		70-130	2		30
Isopropylbenzene	100		99		70-130	1		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	104		104		70-130
Toluene-d8	104		105		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 33-34 Batch: WG1662236-3 WG1662236-4								
Methyl tert butyl ether	100		101		66-130	1		30
Benzene	99		100		70-130	1		30
Toluene	101		102		70-130	1		30
Ethylbenzene	99		101		70-130	2		30
Isopropylbenzene	100		99		70-130	1		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	104		104		70-130
Toluene-d8	104		105		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27 Batch: WG1662358-3 WG1662358-4								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	85		87		70-130	2		30
Toluene	78		81		70-130	4		30
Ethylbenzene	85		87		70-130	2		30
Isopropylbenzene	88		90		70-130	2		30
1,3,5-Trimethylbenzene	88		89		70-130	1		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		101		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	102		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 34 Batch: WG1662882-3 WG1662882-4								
Methyl tert butyl ether	118		118		66-130	0		30
Benzene	106		109		70-130	3		30
Toluene	108		108		70-130	0		30
Ethylbenzene	106		107		70-130	1		30
Isopropylbenzene	113		112		70-130	1		30
1,3,5-Trimethylbenzene	109		108		70-130	1		30
1,2,4-Trimethylbenzene	110		109		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	109		107		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 32 Batch: WG1662896-3 WG1662896-4								
Methyl tert butyl ether	120		122		66-130	2		30
Benzene	111		111		70-130	0		30
Toluene	112		113		70-130	1		30
Ethylbenzene	111		111		70-130	0		30
Isopropylbenzene	115		117		70-130	2		30
1,3,5-Trimethylbenzene	112		111		70-130	1		30
1,2,4-Trimethylbenzene	111		112		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		108		70-130
Dibromofluoromethane	90		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 35-37,39 Batch: WG1662938-3 WG1662938-4								
Methyl tert butyl ether	84		85		63-130	1		20
Benzene	100		100		70-130	0		20
Toluene	96		97		70-130	1		20
Ethylbenzene	100		97		70-130	3		20
Isopropylbenzene	98		97		70-130	1		20
1,3,5-Trimethylbenzene	94		97		64-130	3		20
1,2,4-Trimethylbenzene	93		96		70-130	3		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	103		99		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	96		95		70-130
Dibromofluoromethane	111		105		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:42
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.6		mg/kg	0.20	0.024	1
Fluorene	0.25		mg/kg	0.20	0.019	1
Phenanthrene	0.37		mg/kg	0.12	0.024	1
Anthracene	0.078	J	mg/kg	0.12	0.039	1
Pyrene	0.087	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.054	J	mg/kg	0.12	0.022	1
Chrysene	0.056	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	135	Q	23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	50		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-02
 Client ID: PB-823-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:05
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-03
 Client ID: PB-823-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:29
 Analyst: ALS
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	51		30-120
4-Terphenyl-d14	45		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-04
 Client ID: PB-823-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:52
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.90		mg/kg	0.20	0.024	1
Fluorene	0.21		mg/kg	0.20	0.019	1
Phenanthrene	0.32		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	0.050	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.042	J	mg/kg	0.12	0.022	1
Chrysene	0.040	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	133	Q	23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	52		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-05
 Client ID: PB-823-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:43
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.81		mg/kg	0.20	0.024	1
Fluorene	0.39		mg/kg	0.20	0.019	1
Phenanthrene	0.50		mg/kg	0.12	0.024	1
Anthracene	0.12		mg/kg	0.12	0.039	1
Pyrene	0.13		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.075	J	mg/kg	0.12	0.022	1
Chrysene	0.073	J	mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.036	J	mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.024	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-06
 Client ID: PB-823-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:05
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-07
 Client ID: PB-823-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:28
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 19:50
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	73		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:13
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-10
 Client ID: PB-823-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:35
 Analyst: ALS
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	61		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-11
 Client ID: PB-823-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 20:57
 Analyst: ALS
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	ND		mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.031	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-12
 Client ID: PB-823-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:20
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13
 Client ID: PB-823-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 18:20
 Analyst: ALS
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-14
 Client ID: PB-823-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 21:42
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	100		30-120
4-Terphenyl-d14	105		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-15
 Client ID: PB-823-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:05
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.20	0.024	1
Fluorene	0.55		mg/kg	0.20	0.019	1
Phenanthrene	1.0		mg/kg	0.12	0.024	1
Anthracene	0.094	J	mg/kg	0.12	0.038	1
Pyrene	0.11	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-16
 Client ID: PB-825-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:27
 Analyst: ALS
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.18	J	mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	135	Q	23-120
2-Fluorobiphenyl	146	Q	30-120
4-Terphenyl-d14	135	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-17
 Client ID: PB-825-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 22:50
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	87		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-18
 Client ID: PB-825-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 12:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/09/22 23:13
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-19
 Client ID: PB-825-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:37
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	100		30-120
4-Terphenyl-d14	103		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-20
 Client ID: PB-825-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:15
 Analyst: JG
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	90		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-21
 Client ID: PB-825-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:53
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-22
 Client ID: PB-825-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:30
 Analyst: JG
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.025	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-23
 Client ID: PB-825-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 20:08
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	79		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-24
 Client ID: PB-825-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 21:47
 Analyst: JG
 Percent Solids: 61%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.27	0.033	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	141	Q	23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	54		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-25
 Client ID: PB-825-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:50
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 19:45
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/13/22 06:05
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	56		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-27
 Client ID: PB-825-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:10
 Analyst: JG
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.22	0.027	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-28
 Client ID: PB-825-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/13/22 06:51
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	97		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-29
 Client ID: PB-825-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:57
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-30
 Client ID: PB-825-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:15
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 23:21
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.13	J	mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-31
 Client ID: PB-825-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 23:44
 Analyst: JG
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.22	0.027	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-32
 Client ID: PB-825-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/11/22 00:08
 Analyst: JG
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.20		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	139	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-33
 Client ID: PB-825-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/11/22 00:31
 Analyst: JG
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.39		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	69		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-34
 Client ID: PB-825-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:00
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.2		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	78		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-35
 Client ID: FB-070722-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 15:52
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/09/22 02:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	34		15-120
4-Terphenyl-d14	39	Q	41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-36
 Client ID: FB-070722-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 16:08
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 17:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	30		23-120
2-Fluorobiphenyl	31		15-120
4-Terphenyl-d14	40	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-37
 Client ID: FB-070722-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/09/22 16:24
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/08/22 17:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.04	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	49		15-120
4-Terphenyl-d14	57		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-38
 Client ID: DUP-36
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/10/22 22:22
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	ND		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/12/22 11:59
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 07/08/22 08:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 35-37 Batch: WG1660313-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	26		23-120
2-Fluorobiphenyl	27		15-120
4-Terphenyl-d14	25	Q	41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/09/22 14:36
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 09:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-13 Batch: WG1660333-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	105		30-120
4-Terphenyl-d14	127	Q	18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/09/22 13:29
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/08/22 14:16

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 14-33 Batch: WG1660507-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	97		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/10/22 17:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 07/08/22 14:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 34,38 Batch: WG1660522-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	74		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 35-37 Batch: WG1660313-2 WG1660313-3								
Naphthalene	64		64		40-140	0		40
Fluorene	64		66		40-140	3		40
Phenanthrene	65		66		40-140	2		40
Anthracene	66		68		40-140	3		40
Pyrene	70		70		26-127	0		40
Benzo(a)anthracene	62		65		40-140	5		40
Chrysene	70		70		40-140	0		40
Benzo(b)fluoranthene	64		71		40-140	10		40
Benzo(a)pyrene	66		66		40-140	0		40
Benzo(ghi)perylene	73		75		40-140	3		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	31		31		23-120
2-Fluorobiphenyl	31		32		15-120
4-Terphenyl-d14	35	Q	36	Q	41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-13 Batch: WG1660333-2 WG1660333-3								
Naphthalene	76		70		40-140	8		50
Fluorene	91		81		40-140	12		50
Phenanthrene	78		71		40-140	9		50
Anthracene	84		75		40-140	11		50
Pyrene	87		78		35-142	11		50
Benzo(a)anthracene	94		84		40-140	11		50
Chrysene	91		82		40-140	10		50
Benzo(b)fluoranthene	100		91		40-140	9		50
Benzo(a)pyrene	103		92		40-140	11		50
Benzo(ghi)perylene	86		79		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	74		67		23-120
2-Fluorobiphenyl	87		79		30-120
4-Terphenyl-d14	102		90		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 14-33 Batch: WG1660507-2 WG1660507-3								
Naphthalene	81		67		40-140	19		50
Fluorene	96		76		40-140	23		50
Phenanthrene	84		67		40-140	23		50
Anthracene	90		72		40-140	22		50
Pyrene	93		75		35-142	21		50
Benzo(a)anthracene	99		81		40-140	20		50
Chrysene	97		80		40-140	19		50
Benzo(b)fluoranthene	113		90		40-140	23		50
Benzo(a)pyrene	112		91		40-140	21		50
Benzo(ghi)perylene	92		75		40-140	20		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		68		23-120
2-Fluorobiphenyl	95		76		30-120
4-Terphenyl-d14	110		88		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 34,38 Batch: WG1660522-2 WG1660522-3								
Naphthalene	72		66		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	72		65		23-120
2-Fluorobiphenyl	76		65		30-120
4-Terphenyl-d14	76		62		18-120



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-01
 Client ID: PB-823-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 09:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-02

Date Collected: 07/07/22 09:20

Client ID: PB-823-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-03

Date Collected: 07/07/22 09:30

Client ID: PB-823-03-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-04

Date Collected: 07/07/22 09:40

Client ID: PB-823-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-05

Date Collected: 07/07/22 09:50

Client ID: PB-823-05-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-06

Date Collected: 07/07/22 10:00

Client ID: PB-823-06-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-07

Date Collected: 07/07/22 10:10

Client ID: PB-823-07-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-08
 Client ID: PB-823-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-09
 Client ID: PB-823-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 10:30
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-10

Date Collected: 07/07/22 10:40

Client ID: PB-823-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-11

Date Collected: 07/07/22 10:50

Client ID: PB-823-11-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-12
 Client ID: PB-823-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 11:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2236264

Project Number: 200.00135.006

Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-13

Date Collected: 07/07/22 11:10

Client ID: PB-823-13-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-14

Date Collected: 07/07/22 11:20

Client ID: PB-823-14-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-15

Date Collected: 07/07/22 11:30

Client ID: PB-823-15-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-16

Date Collected: 07/07/22 12:30

Client ID: PB-825-01-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-17

Date Collected: 07/07/22 12:40

Client ID: PB-825-02-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-18

Date Collected: 07/07/22 12:50

Client ID: PB-825-03-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-19

Date Collected: 07/07/22 13:00

Client ID: PB-825-04-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-20
 Client ID: PB-825-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:10
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/08/22 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-21

Date Collected: 07/07/22 13:20

Client ID: PB-825-06-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-22

Date Collected: 07/07/22 13:30

Client ID: PB-825-07-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-23

Date Collected: 07/07/22 13:40

Client ID: PB-825-08-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-24

Date Collected: 07/07/22 13:45

Client ID: PB-825-09-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-25

Date Collected: 07/07/22 13:50

Client ID: PB-825-10-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-26
 Client ID: PB-825-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 13:55
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-27

Date Collected: 07/07/22 14:00

Client ID: PB-825-12-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-28
 Client ID: PB-825-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:05
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-29

Date Collected: 07/07/22 14:10

Client ID: PB-825-14-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-30
 Client ID: PB-825-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:15
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-31
 Client ID: PB-825-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 14:20
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.5		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-32

Date Collected: 07/07/22 14:25

Client ID: PB-825-17-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-33

Date Collected: 07/07/22 14:30

Client ID: PB-825-18-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**SAMPLE RESULTS**

Lab ID: L2236264-34

Date Collected: 07/07/22 14:35

Client ID: PB-825-19-SS01

Date Received: 07/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2236264
Report Date: 07/14/22

SAMPLE RESULTS

Lab ID: L2236264-38
 Client ID: DUP-36
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/07/22 00:00
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/08/22 12:54	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2236264

Report Date: 07/14/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1660438-1 QC Sample: L2236264-01 Client ID: PB-823-01-SS01						
Solids, Total	82.4	82.7	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-34,38 QC Batch ID: WG1660441-1 QC Sample: L2236264-21 Client ID: PB-825-06-SS01						
Solids, Total	83.2	83.5	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-01A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-01B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-01C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-01D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-01E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-02A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-02B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-02C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-02D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-02E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-03A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-03B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-03C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-03D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-03E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-04A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-04B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-04C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-04D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-04E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-05A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-05B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-05C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-05D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-05E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-06A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-06B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-06C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-06D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-06E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-07A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-07B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-07C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-07D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-07E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-08A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-08B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-08C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-08D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-08E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-09A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-09B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-09C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-09D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-09E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-10A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-10B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-10C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-10D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-10E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-11A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-11B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-11C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-11D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-11E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-12A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-12B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-12C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-12D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-12E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-13A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-13B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-13C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-13D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-13E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-14A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-14B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-14C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-14D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-14E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-15A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-15B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-15C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-15D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-15E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-16A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:07142213:59
Lab Number: L2236264
Report Date: 07/14/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-16B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-16C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-16D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-16E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-17A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-17B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-17C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-17D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-17E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-18A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-18B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-18C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-18D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-18E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-19A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-19B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-19C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-19D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-19E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-20A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-20B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-20C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-20D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-20E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-21A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-21B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-21C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-21D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-21E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-22A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-22B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-22C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-22D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-22E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-23A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-23B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-23C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-23D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-23E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-24A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2236264-24B	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-24C	Vial water preserved	B	NA		4.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-24D	Plastic 2oz unpreserved for TS	B	NA		4.2	Y	Absent		TS(7)
L2236264-24E	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-PAH(14)
L2236264-25A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-25B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-25C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-25D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-25E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-26A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-26B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-26C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-26D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-26E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-27A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-27B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-27C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-27D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-27E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-28A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-28B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-28C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-28D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-28E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-29A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-29B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-29C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-29D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-29E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-30A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-30B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-30C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-30D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-30E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-31A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-31B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-31C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-31D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-31E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-32A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-32B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-32C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-32D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-32E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2236264**Project Number:** 200.00135.006**Report Date:** 07/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-33A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-33B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-33C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-33D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-33E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-34A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2236264-34B	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-34C	Vial water preserved	C	NA		3.2	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-34D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2236264-34E	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2236264-35A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-35D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-35E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-36A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-36D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-36E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-37A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-37D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-37E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2236264-38A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2236264-38B	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)
L2236264-38C	Vial water preserved	A	NA		3.6	Y	Absent	08-JUL-22 12:13	PA-8260HLW(14)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236264-38D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2236264-38E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2236264-39A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-39B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2236264-39C	Vial Na2S2O3 preserved	NA	NA			Y	Absent		-



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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 4



Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Manfield, MA
TEL: 508-827-9300
FAX: 508-827-3288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Fax:
Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jgray@nicoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.008

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: **2-DAY** Time:

Date Rec'd in Lab: 7/18/02

ALPHA Job #: L2236264

Report Information Data Deliverables

FAX EMAIL
 ADE+ Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

Sample Specific Comments

TOTAL # SAMPLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
36264	1 PB-823-01-SS01	7/7	0910	S	TS
	2 PB-823-02-SS01		0920		
	3 PB-823-03-SS01		0930		
	4 PB-823-04-SS01		0940		
	5 PB-823-05-SS01		0950		
	6 PB-823-06-SS01		1000		
	7 PB-823-07-SS01		1010		
	8 PB-823-08-SS01		1020		
	9 PB-823-09-SS01		1030		
	10 PB-823-10-SS01		1040		

5 FUEL OIL SHORTLIST

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/7	STU AAL	7/18/02 15:00
<i>[Signature]</i>	7/22/02	<i>[Signature]</i>	7-2-02
<i>[Signature]</i>	7/7/02	<i>[Signature]</i>	7/7/02 2100

(Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.)

CHAIN OF CUSTODY

PAGE 2 OF 4



Westborough, MA Mansfield, MA
 TEL: 508-858-0720 TEL: 508-822-9300
 FAX: 508-858-9193 FAX: 508-822-3388

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18599

Turn-Around Time

Standard Rush ONLY IF PRE-APPROVED
2-DAY
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: *7/8/22*

ALPHA Job #: *L2256264*

Report Information Data Deliverables

FAX EMAIL
 ACEX Add'l Deliverables

Billing Information

Same as Client info PO #: 3582

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

SHORT LIST 45
SHORT LIST 4

ALPHA Lab ID	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<i>36264</i>	<i>PB-823-11-5501</i>	<i>7/7</i>	<i>1050</i>	<i>S</i>	<i>TS</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-823-12-5501</i>		<i>1100</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-823-13-5501</i>		<i>1110</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-823-14-5501</i>		<i>1120</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-823-15-5501</i>		<i>1130</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-825-01-5501</i>		<i>1230</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-825-02-5501</i>		<i>1240</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-825-03-5501</i>		<i>1250</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-825-04-5501</i>		<i>1300</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>PB-825-05-5501</i>		<i>1310</i>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type: Preservative:

Released By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	<i>7/7 12:22:150</i>	<i>STR AAL</i>	<i>7/8/22 15:00</i>
<i>[Signature]</i>	<i>7/7-22</i>	<i>[Signature]</i>	<i>7-7-150</i>
<i>[Signature]</i>	<i>7/7/22</i>	<i>[Signature]</i>	<i>7/1/22 2150</i>

Please print clearly, legibly and completely. Samples can not be logged to and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 4 OF 4



Webbborough, MA
TEL: 508-896-9229
FAX: 508-896-9193

Mansfield, MA
TEL: 508-832-8300
FAX: 508-832-3388

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-801-4974

Fax:
Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18599

Turn-Around Time

Standard RUSH (ONLY IF PRE-APPROVED)

Due Date: Time:

2-DAY

Date Rec'd in Lab: 7/18/22

ALPHA Job #: L22-36264

Report Information Data Deliverables

FAX EMAIL
 ADEK Add'l Deliverables

Billing Information

Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

ANALYSIS

SHORTLIST 4
SHORTLIST 5
VOC PORTION CFSL415

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initial
		Date	Time		
36264	31 PB-825-16-SS01	7/7	1420	S	TS
	32 PB-825-17-SS01		1425	S	
	33 PB-825-18-SS01		1430	S	
	34 PB-825-19-SS01		1435	S	
	35 FB-070722-4		1400	W	
	36 FB-070722-5		1410	W	
	37 FB-070722-6		1420	W	
	38 DUP-36		-	S	
	39 TB-070722		-	W	

Container Type	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Released By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/7 7/12/20	ST-ADL	7/12/22 KLB
<i>[Signature]</i>	7/7/22	<i>[Signature]</i>	7/11/22

Please print clearly, legibly and concisely. Samples can not be logged in and turnaround time clock will not start until any anomalies are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

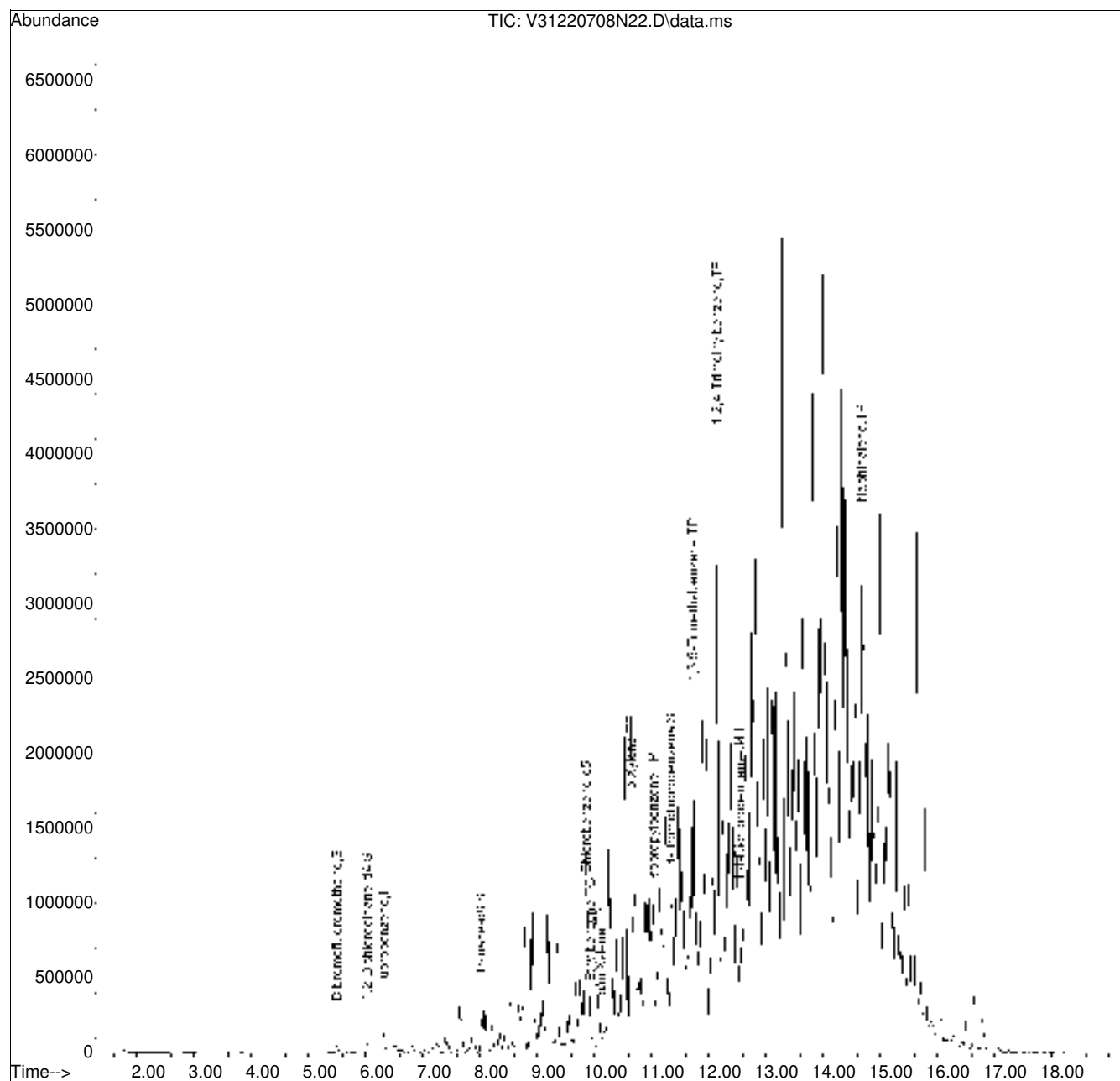
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708N\
Data File : V31220708N22.D
Acq On : 09 Jul 2022 02:13 am
Operator : VOA131:NLK
Sample : 12236264-01,31h,5.59,5,0.100,,a,r1c
Misc : WG1660941,ICAL19050
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 09 11:36:00 2022
Quant Method : I:\VOLATILES\VOA131\2022\220708N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08N\V31220708N01.D•

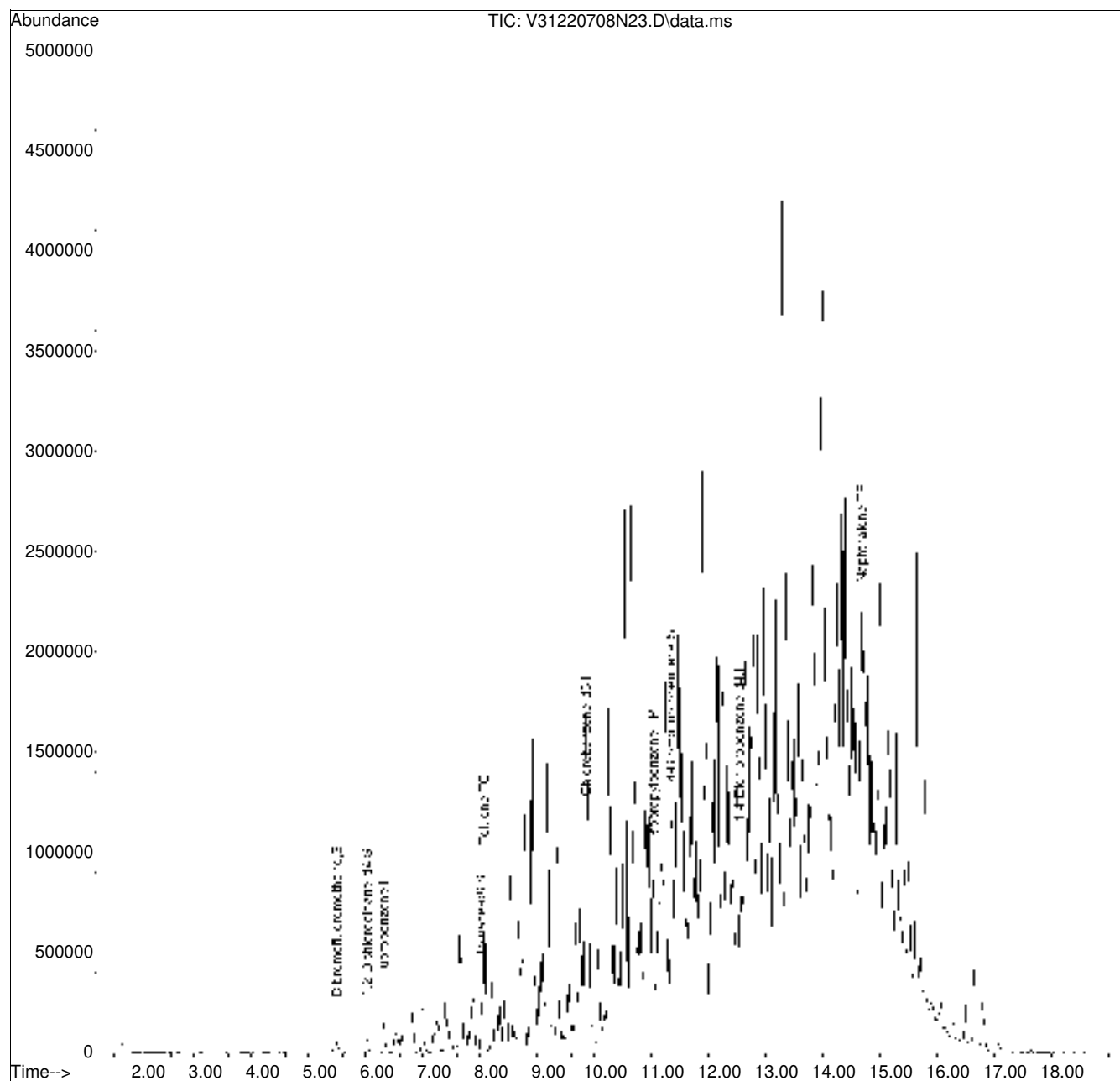


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220708N\
Data File : V31220708N23.D
Acq On : 09 Jul 2022 02:36 am
Operator : VOA131:NLK
Sample : 12236264-04,31h,5.21,5,0.100,,a,r1c
Misc : WG1660941,ICAL19050
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 10 10:57:57 2022
Quant Method : I:\VOLATILES\VOA131\2022\220708N\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08N\V31220708N01.D•

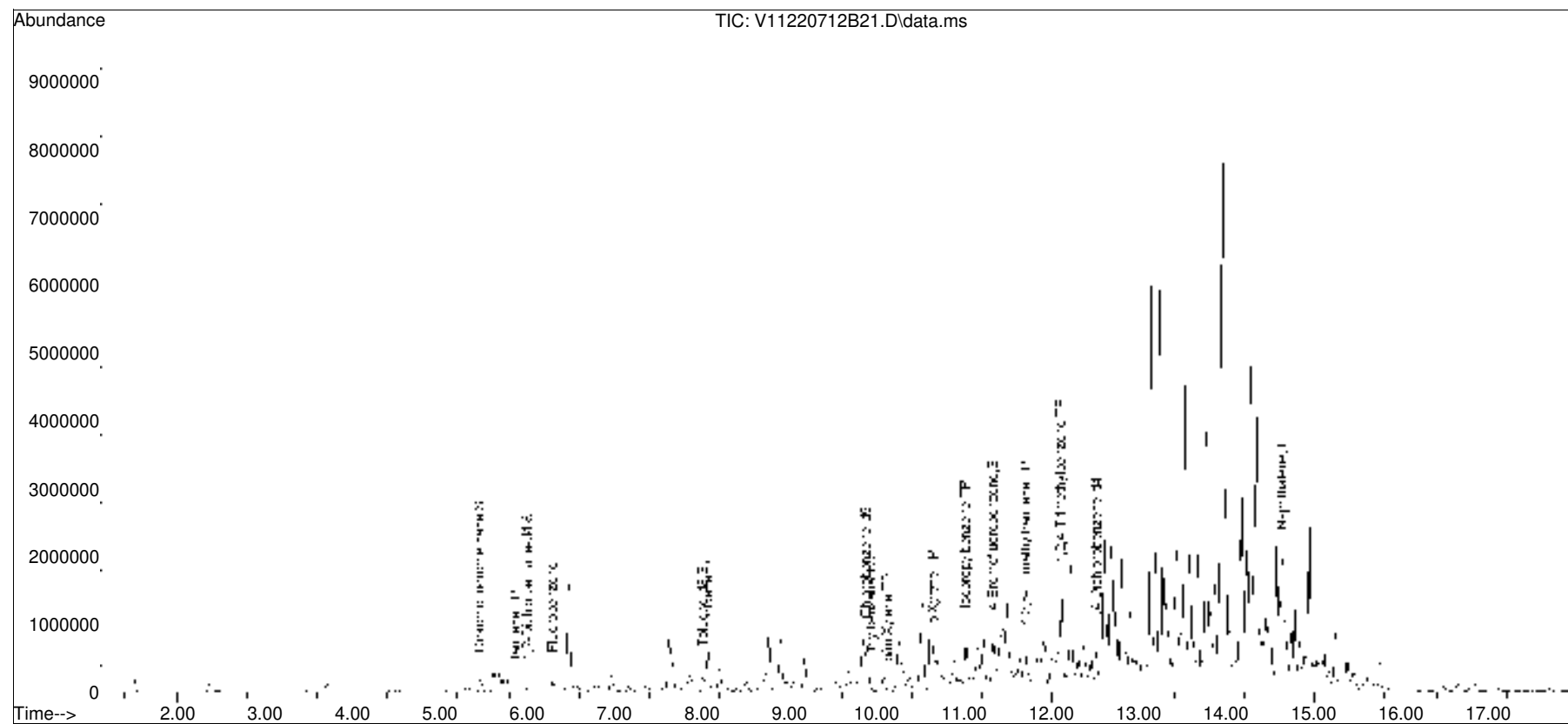


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220712B\
Data File : V11220712B21.D
Acq On : 12 Jul 2022 08:51 pm
Operator : VOA111:AJK
Sample : L2236264-30,31H,5.66,5,0.100,,A,R1C
Misc : WG1662075,ICAL19072
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 13 00:01:32 2022
Quant Method : I:\VOLATILES\VOA111\2022\220712B\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12B\V11220712B01.D•

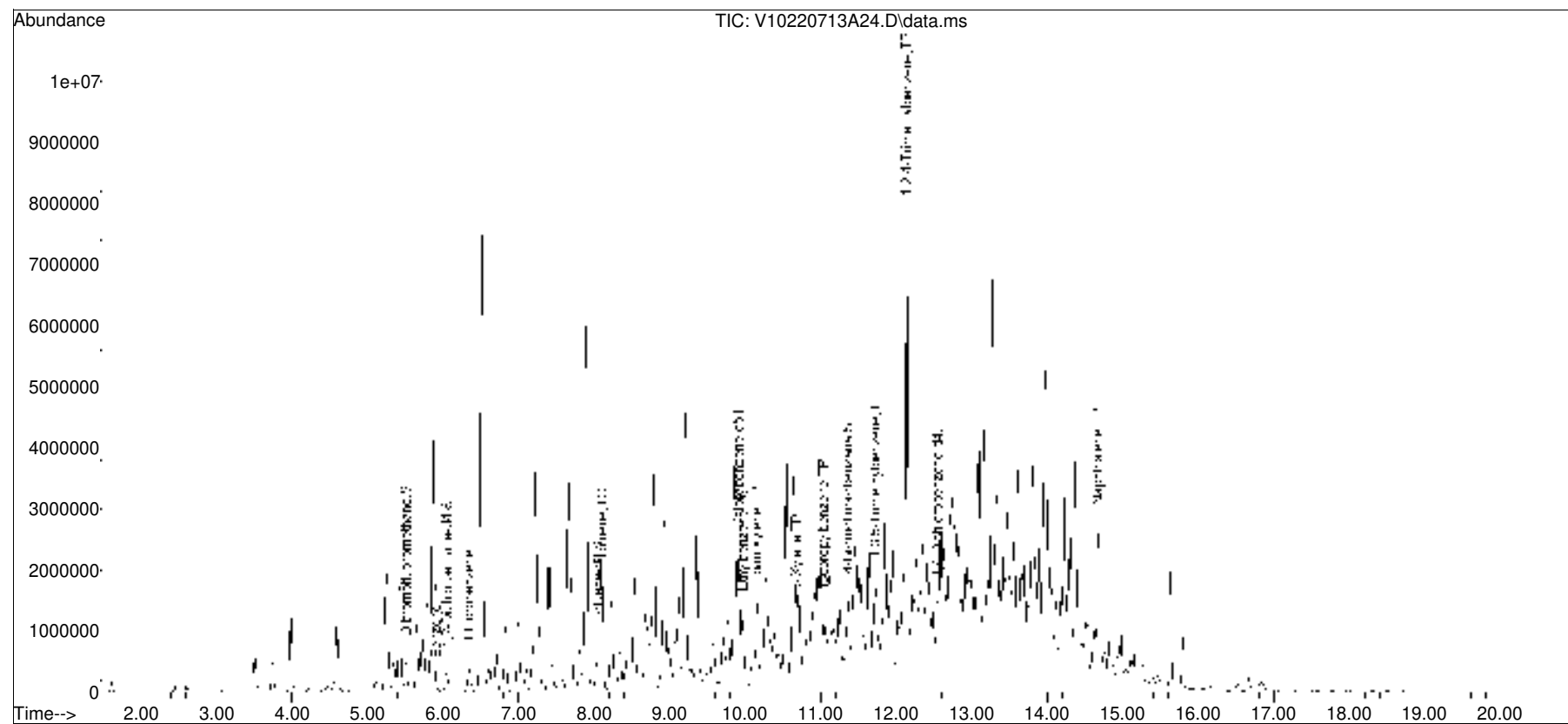


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220713A\
Data File : V10220713A24.D
Acq On : 13 Jul 2022 9:59 pm
Operator : VOA110:JC
Sample : 12236264-32,31h,5.39,5,0.100,,a
Misc : WG1662896,ICAL18890
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 14 09:26:24 2022
Quant Method : I:\VOLATILES\VOA110\2022\220713A\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10220713A01.D•

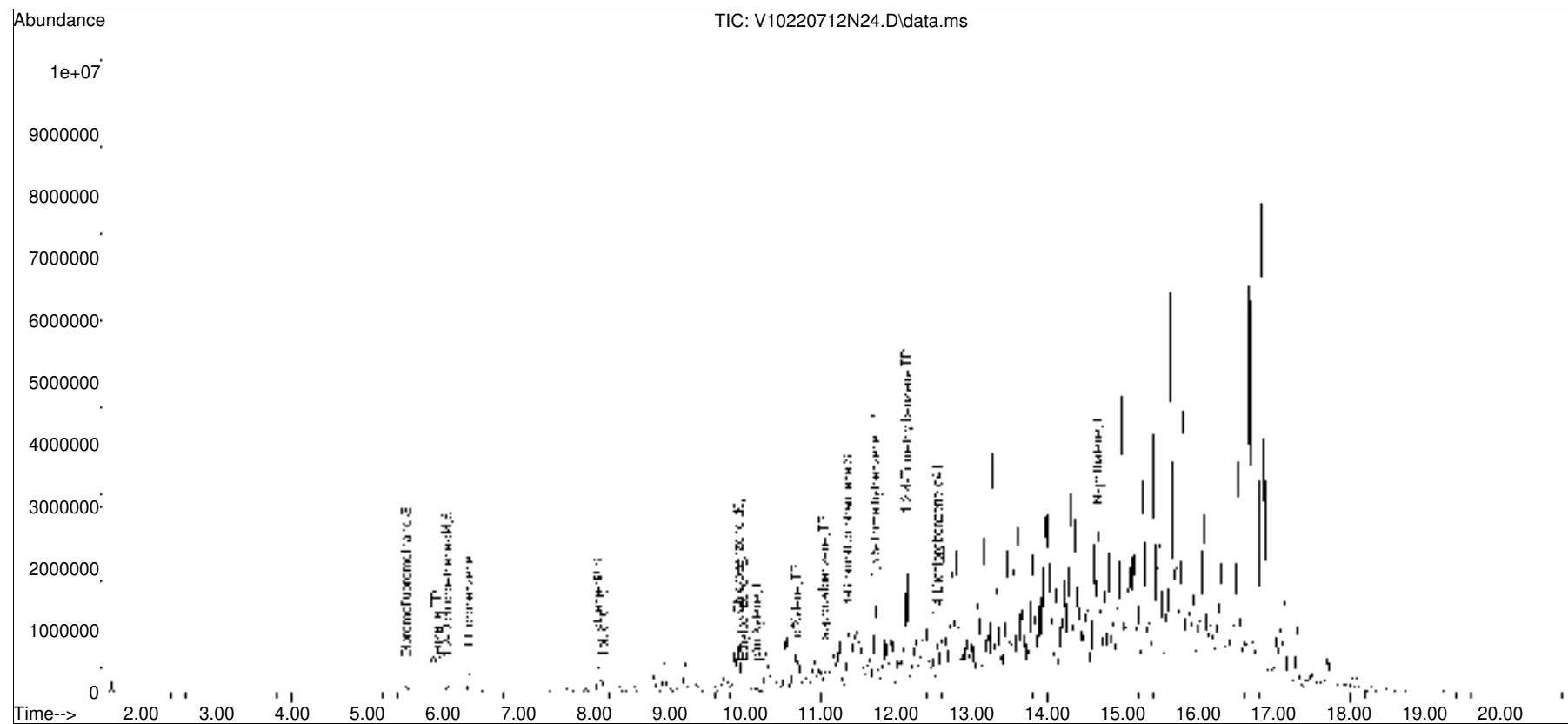


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220712N\
Data File : V10220712N24.D
Acq On : 13 Jul 2022 6:13 am
Operator : VOA110:JC
Sample : 12236264-33D,31h,4.89,5,0.050,,a,r1c
Misc : WG1662236,ICAL18890
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 13 06:45:53 2022
Quant Method : I:\VOLATILES\VOA110\2022\220712N\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V10220712N01.D•

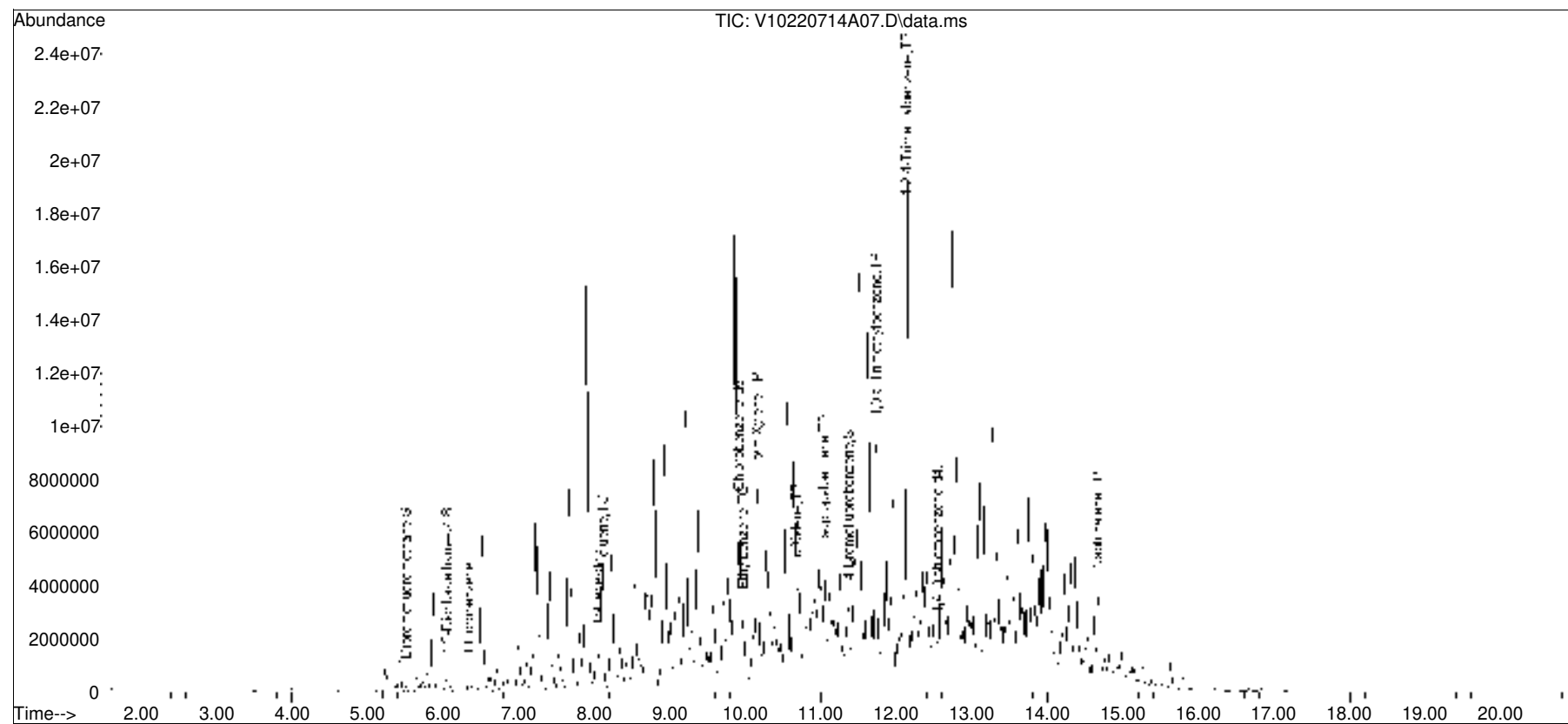


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220714A\
Data File : V10220714A07.D
Acq On : 14 Jul 2022 10:09 am
Operator : VOA110:MKS
Sample : 12236264-34, 31h, 5.33, 5, 0.100, , a
Misc : WG1662882, ICAL18890
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 14 11:09:37 2022
Quant Method : I:\VOLATILES\VOA110\2022\220714A\V110_220401N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Apr 04 06:52:50 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V10220714A01.D•





ANALYTICAL REPORT

Lab Number:	L2239626
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/08/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239626-01	PB-253-19-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 09:50	07/25/22
L2239626-02	PB-253-19-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 10:00	07/25/22
L2239626-03	PB-253-19-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 10:10	07/25/22
L2239626-04	PB-253-19-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 10:20	07/25/22
L2239626-05	PB-253-18-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 11:00	07/25/22
L2239626-06	PB-253-18-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 11:10	07/25/22
L2239626-07	PB-253-18-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 11:20	07/25/22
L2239626-08	PB-253-18-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 11:30	07/25/22
L2239626-09	PB-253-1R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 12:00	07/25/22
L2239626-10	PB-253-1R-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 12:10	07/25/22
L2239626-11	PB-253-1R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 12:20	07/25/22
L2239626-12	PB-253-1R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 12:30	07/25/22
L2239626-13	PB-253-20-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 13:00	07/25/22
L2239626-14	PB-253-20-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 13:10	07/25/22
L2239626-15	PB-253-20-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 13:20	07/25/22
L2239626-16	PB-253-20-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 13:30	07/25/22
L2239626-17	PB-253-21-0.0-0.5	SOIL	PHILADELPHIA, PA	07/25/22 14:00	07/25/22
L2239626-18	PB-253-21-4.0-4.5	SOIL	PHILADELPHIA, PA	07/25/22 14:10	07/25/22
L2239626-19	PB-253-21-6.0-6.5	SOIL	PHILADELPHIA, PA	07/25/22 14:20	07/25/22
L2239626-20	PB-253-21-14.0-14.5	SOIL	PHILADELPHIA, PA	07/25/22 14:30	07/25/22
L2239626-21	FB-072522-1	WATER	PHILADELPHIA, PA	07/25/22 14:40	07/25/22
L2239626-22	FB-072522-2	WATER	PHILADELPHIA, PA	07/25/22 14:45	07/25/22
L2239626-23	TB-072522	WATER	PHILADELPHIA, PA	07/25/22 00:00	07/25/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative (continued)

Report Submission

August 08, 2022: This final report includes the results of all requested analyses.

August 01, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2239626-03: The collection date and time on the chain of custody was 25-JUL-22 10:10; however, the collection date/time on the container label was 25-JUL-22 10:00. At the client's request, the collection date/time is reported as 25-JUL-22 10:10.

L2239626-23: Headspace was noted in the sample containers submitted for Volatile Organics. The analysis was performed at the client's request.

Volatile Organics

L2239626-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (191%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-03D: The surrogate recovery is outside the acceptance criteria for 1,2-dichloroethane-d4 (212%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Case Narrative (continued)

L2239626-10D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (170%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2239626-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 08/08/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-01 D
 Client ID: PB-253-19-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 09:50
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 20:37
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	2.8		mg/kg	0.15	0.050	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-02 D
 Client ID: PB-253-19-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 19:22
 Analyst: LAC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	8.1		mg/kg	0.11	0.037	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	191	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-03 D
 Client ID: PB-253-19-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 21:15
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	65.		mg/kg	0.15	0.050	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	212	Q	70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-04 D
 Client ID: PB-253-19-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 21:54
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	6.2		mg/kg	0.058	0.019	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-05
 Client ID: PB-253-18-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 18:41
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.11		mg/kg	0.032	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-06
 Client ID: PB-253-18-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 00:48
 Analyst: KJD
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.1		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	88		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-07 D
 Client ID: PB-253-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 22:32
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.60		mg/kg	0.31	0.10	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-08
 Client ID: PB-253-18-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 11:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 19:19
 Analyst: NLK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.067		mg/kg	0.027	0.0089	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	83		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-09
 Client ID: PB-253-1R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/26/22 22:34
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00038	J	mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	164	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10 D
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 18:56
 Analyst: LAC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	3.8		mg/kg	0.059	0.020	2
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	170	Q	70-130
Dibromofluoromethane	73		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-11
 Client ID: PB-253-1R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 01:41
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	3.8		mg/kg	0.055	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-12
 Client ID: PB-253-1R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/04/22 12:35
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.052		mg/kg	0.028	0.0094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-13
 Client ID: PB-253-20-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 19:58
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.43		mg/kg	0.056	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-14 D
 Client ID: PB-253-20-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/27/22 18:30
 Analyst: LAC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Benzene	120		mg/kg	0.63	0.21	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	142	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-15 D
 Client ID: PB-253-20-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:20
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/03/22 23:11
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	360		mg/kg	8.0	2.6	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-16 D
 Client ID: PB-253-20-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/04/22 12:57
 Analyst: AJK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	1.2		mg/kg	0.51	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-18
 Client ID: PB-253-21-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/26/22 23:01
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	ND		mg/kg	0.00056	0.00019	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-21
 Client ID: FB-072522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:40
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 19:44
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-22
 Client ID: FB-072522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:45
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 20:08
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-23
 Client ID: TB-072522
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 00:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 20:31
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/26/22 16:48
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,18 Batch: WG1668055-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/26/22 16:48
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,11 Batch: WG1668060-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/27/22 11:23
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,10,14 Batch: WG1668518-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 19:21
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-23 Batch: WG1668960-5					
Benzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/03/22 14:46
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03-05,07-08,13,15 Batch: WG1671337-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/04/22 08:26
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12,16 Batch: WG1671502-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,18 Batch: WG1668055-3 WG1668055-4								
Benzene	102		92		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,11 Batch: WG1668060-3 WG1668060-4								
Benzene	102		92		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,10,14 Batch: WG1668518-3 WG1668518-4								
Benzene	92		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	103		102		70-130
Dibromofluoromethane	97		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239626

Project Number: 200.00135.006

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-23 Batch: WG1668960-3 WG1668960-4								
Benzene	92		92		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	104		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239626

Project Number: 200.00135.006

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03-05,07-08,13,15 Batch: WG1671337-3 WG1671337-4								
Benzene	110		109		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		95		70-130
Toluene-d8	93		93		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12,16 Batch: WG1671502-3 WG1671502-4								
Benzene	83		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		96		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	92		90		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/27/22 17:27
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/26/22 21:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	3.3		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	88		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-18
 Client ID: PB-253-21-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/27/22 17:49
 Analyst: CMM
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 07/26/22 21:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	ND		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	85		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-21
 Client ID: FB-072522-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:40
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/27/22 09:07
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	56		15-120
4-Terphenyl-d14	61		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-22
 Client ID: FB-072522-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 14:45
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/27/22 09:23
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
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Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	61		15-120
4-Terphenyl-d14	69		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/26/22 10:54
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 07/26/22 00:31

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 10,18 Batch: WG1667245-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	95		25-120
Phenol-d6	95		10-120
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	93		30-120
2,4,6-Tribromophenol	125		10-136
4-Terphenyl-d14	104		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/27/22 08:50
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/26/22 17:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 21-22 Batch: WG1667697-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	64		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239626

Project Number: 200.00135.006

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10,18 Batch: WG1667245-2 WG1667245-3								
Naphthalene	70		62		40-140		12	50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	78		68		25-120
Phenol-d6	78		67		10-120
Nitrobenzene-d5	71		59		23-120
2-Fluorobiphenyl	77		69		30-120
2,4,6-Tribromophenol	103		98		10-136
4-Terphenyl-d14	81		77		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 21-22 Batch: WG1667697-2 WG1667697-3								
Naphthalene	80		74		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	76		67		23-120
2-Fluorobiphenyl	78		74		15-120
4-Terphenyl-d14	81		76		41-149

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-01
 Client ID: PB-253-19-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 09:50
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-02
 Client ID: PB-253-19-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 10:00
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-03

Date Collected: 07/25/22 10:10

Client ID: PB-253-19-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-04

Date Collected: 07/25/22 10:20

Client ID: PB-253-19-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-05

Date Collected: 07/25/22 11:00

Client ID: PB-253-18-0.0-0.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-06

Date Collected: 07/25/22 11:10

Client ID: PB-253-18-4.0-4.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-07

Date Collected: 07/25/22 11:20

Client ID: PB-253-18-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-08

Date Collected: 07/25/22 11:30

Client ID: PB-253-18-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-09

Date Collected: 07/25/22 12:00

Client ID: PB-253-1R-0.0-0.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-10
 Client ID: PB-253-1R-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-11

Date Collected: 07/25/22 12:20

Client ID: PB-253-1R-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-12
 Client ID: PB-253-1R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 12:30
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-13

Date Collected: 07/25/22 13:00

Client ID: PB-253-20-0.0-0.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

SAMPLE RESULTS

Lab ID: L2239626-14
 Client ID: PB-253-20-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/25/22 13:10
 Date Received: 07/25/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-15

Date Collected: 07/25/22 13:20

Client ID: PB-253-20-6.0-6.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	08/02/22 12:20	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-16

Date Collected: 07/25/22 13:30

Client ID: PB-253-20-14.0-14.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	08/02/22 20:28	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**SAMPLE RESULTS**

Lab ID: L2239626-18

Date Collected: 07/25/22 14:10

Client ID: PB-253-21-4.0-4.5

Date Received: 07/25/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	07/26/22 08:51	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239626

Report Date: 08/08/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,06,09-11,14,18 QC Batch ID: WG1667349-1 QC Sample: L2239633-03 Client ID: DUP Sample						
Solids, Total	97.7	97.4	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01,03,05,07,12-13,15 QC Batch ID: WG1670186-1 QC Sample: L2239626-01 Client ID: PB-253-19-0.0-0.5						
Solids, Total	82.6	82.1	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 04,08,16 QC Batch ID: WG1670377-1 QC Sample: L2239626-04 Client ID: PB-253-19-14.0-14.5						
Solids, Total	82.6	83.1	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-01A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-01B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-01C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-01D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-02A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-02B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-02C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-02D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-03A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-03B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-03C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-03D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-04A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-04B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-04C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-04D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-05A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-05B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-05C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-05D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-06A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-06B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-06C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-06D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-07A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-07B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-07C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-07D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-08A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-08B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-08C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-08D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-09A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-09B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-09C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-09D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		TS(7)
L2239626-09E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-10A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-10B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-10C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-10D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2239626-10E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2239626-11A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2239626-11B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-11C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-11D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-12A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-12B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-12C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-12D	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-13A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-13B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-13C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-13D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-14A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-14B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-14C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 10:11	PA-8260HLW(14)
L2239626-14D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2239626-15A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260-BTEX(14)
L2239626-15B	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 10:11	PA-8260-BTEX(14)
L2239626-15C	Vial water preserved	B	NA		3.5	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-15D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2239626-16A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260-BTEX(14)
L2239626-16B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-16C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260-BTEX(14)
L2239626-16D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L2239626-17A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-17B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-17C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-17D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-17E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-18A	Vial MeOH preserved	A	NA		3.6	Y	Absent		PA-8260HLW(14)
L2239626-18B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-18C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	PA-8260HLW(14)
L2239626-18D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		TS(7)
L2239626-18E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		PA-PAH(14)
L2239626-19A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-19B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239626**Project Number:** 200.00135.006**Report Date:** 08/08/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239626-19C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-19D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-19E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-20A	Vial MeOH preserved	A	NA		3.6	Y	Absent		HOLD-8260HLW(14)
L2239626-20B	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-20C	Vial water preserved	A	NA		3.6	Y	Absent	26-JUL-22 05:04	HOLD-8260HLW(14)
L2239626-20D	Plastic 120ml unpreserved	A	NA		3.6	Y	Absent		HOLD-WETCHEM()
L2239626-20E	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		HOLD-8270(14)
L2239626-21A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21C	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-21D	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-21E	Amber 250ml unpreserved	A	7	7	3.6	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-22A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2239626-22D	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-22E	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2239626-23A	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)
L2239626-23B	Vial HCl preserved	A	NA		3.6	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239626
Report Date: 08/08/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239626

Project Number: 200.00135.006

Report Date: 08/08/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: 18509

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jeray@hilcooglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
39626-01	PB-253-14-00-0.5	7/25	0950	S	TS
02	PB-253-14-40-4.5		1000		
03	PB-253-14-60-6.5		1010		
04	PB-253-14-140-14.5		1020		
05	PB-253-18-00-0.5		1100		
06	PB-253-18-40-4.5		1110		
07	PB-253-18-60-6.5		1120		
08	PB-253-18-140-14.5		1130		
09	PB-253-18-00-0.5		1200		
10	PB-253-18-40-4.5		1210		

Date Rec'd in Lab: 7/26/22

ALPHA Job #: L22391026

Report Information Data Deliverables

FAX EMAIL
 ADEs Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ANALYTE	METHODS															
	8260	8270	8270A	8270B	8270C	8270D	8270E	8270F	8270G	8270H	8270I	8270J	8270K	8270L	8270M	8270N
BENZENE (8260)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NAPHTHALENE (8270)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- SAMPLE HANDLING
- Filtration
 - Done
 - Not Needed
 - Lab to do
 - Preservation
 - Lab to do
- (Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY PAGE 2 of 3



Project Information

Westborough, MA Mansfield, MA
 TEL: 508-458-8220 TEL: 508-822-9308
 FAX: 508-858-8193 FAX: 508-822-3288

Project Name: Philadelphia Refinery

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974
 Fax: _____
 Email: William.Schmidt@ransomenv.com

Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: 18599

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: **S-DAY** Time: _____

Other Project Specific Requirements/Comments/Detection Limits:
 Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcooglobal.com

Date Rec'd in Lab: **7/26/22** ALPHA Job #: **L2239626**

Report Information Data Deliverables Billing Information
 FAX EMAIL Same as Client info PO #: 3562
 ADEX Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

ANALYSIS

ANALYSIS	DECRENE (8260)	NAPHTHALENE (8270)	SAMPLE HANDLING										TOTAL # BOTTLES				
			Filtration	Done	Not Needed	Lab to do	Preservation	Lab to do	(Please specify below)	Sample Specific Comments							
39626-11	PB-253-12-60-6.5	7/25 1220	S	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12	PB-253-12-14.0-14.5	1230			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
13	PB-253-20-0.0-0.5	1300			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
14	PB-253-20-4.0-4.5	1310			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
15	PB-253-20-6.0-6.5	1320			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
16	PB-253-20-14.0-14.5	1330			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
17	PB-253-21-0.0-0.5	1400			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
18	PB-253-21-4.0-4.5	1410			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
19	PB-253-21-60-6.5	1420			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
20	PB-253-21-14.0-14.5	1430			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD

Container Type: - - - - -
 Preservative: - - - - -

Released By: **[Signature]** Date/Time: **7/25/22 14:45**
 Received By: **SI-AAL** Date/Time: **7/25/22 14:45**
[Signature] **[Signature]** **[Signature]**

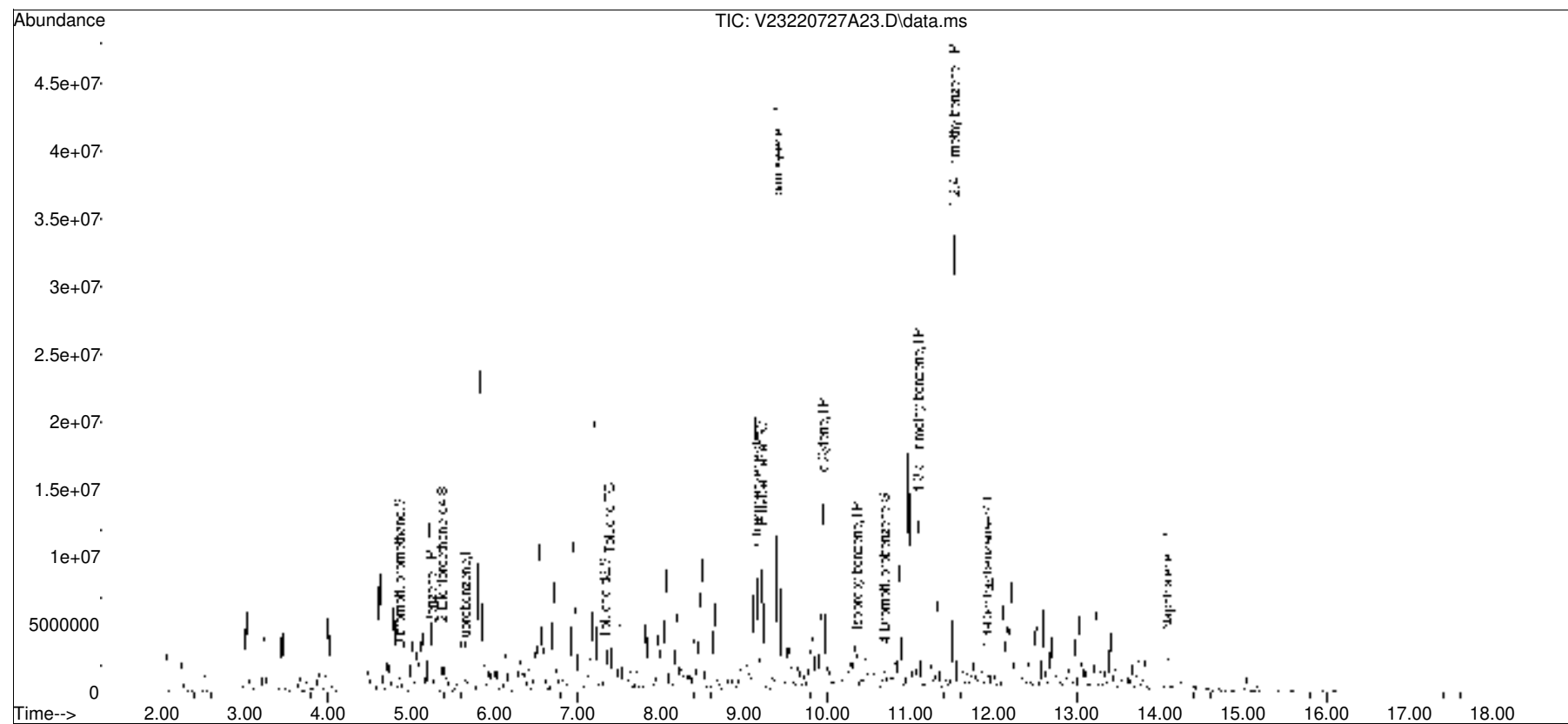
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220727A\
 Data File : V23220727A23.D
 Acq On : 27 Jul 2022 07:22 pm
 Operator : VOA123:LAC
 Sample : 12239626-02D, 31h, 5.95, 10, 0.050, , a, r2f
 Misc : WG1668518, ICAL19190
 ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 02 18:05:44 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jul 19 09:34:38 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list27A\V23220727A01.D•

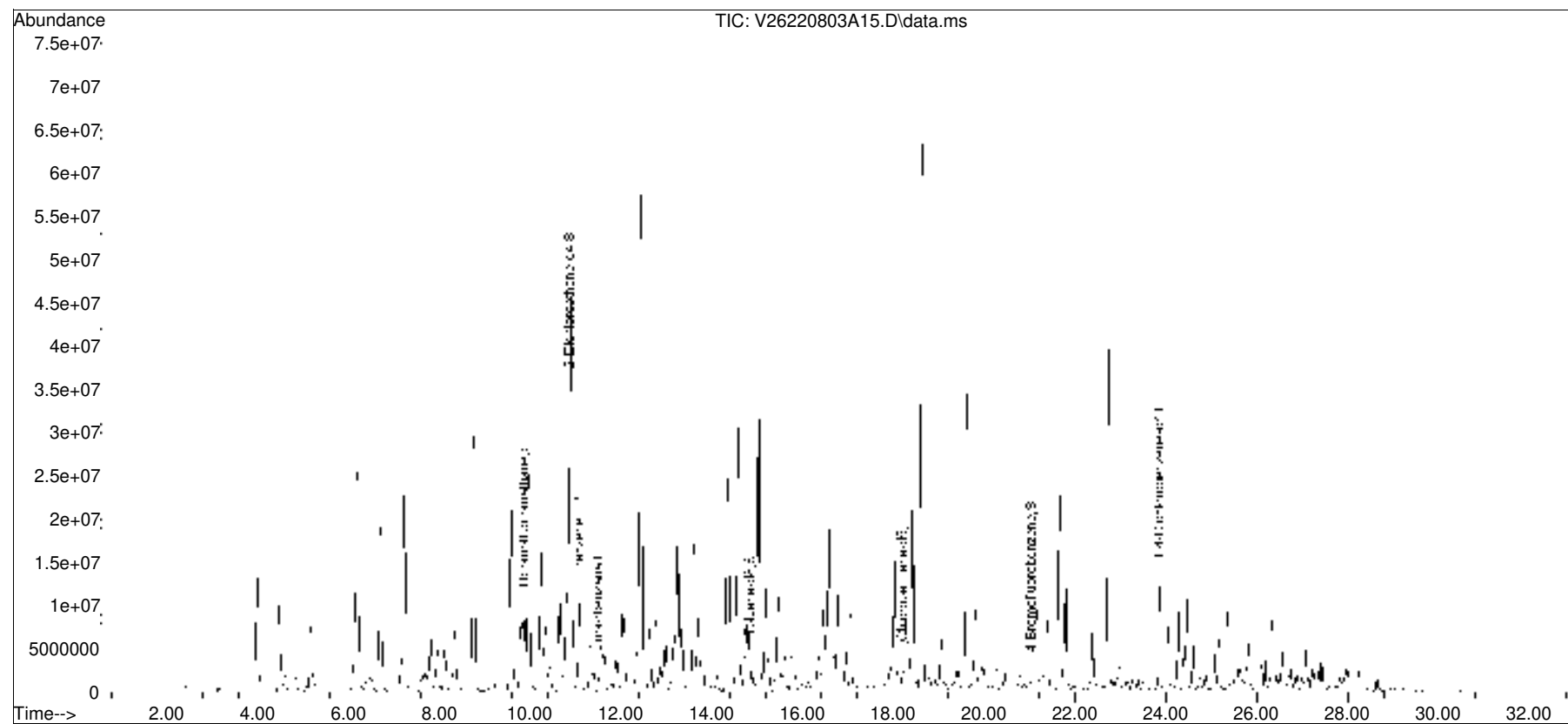


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA126\2022\220803A\
Data File : V26220803A15.D
Acq On : 03 Aug 2022 09:15 pm
Operator : VOA126:NLK
Sample : L2239626-03D, 31H, 4.40, 10, 0.05, , A, R2F
Misc : WG1671337, ICAL19172
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 04 12:29:10 2022
Quant Method : I:\VOLATILES\VOA126\2022\220803A\V126_220713P_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 14 06:55:13 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220803A\V26220803A02.D•

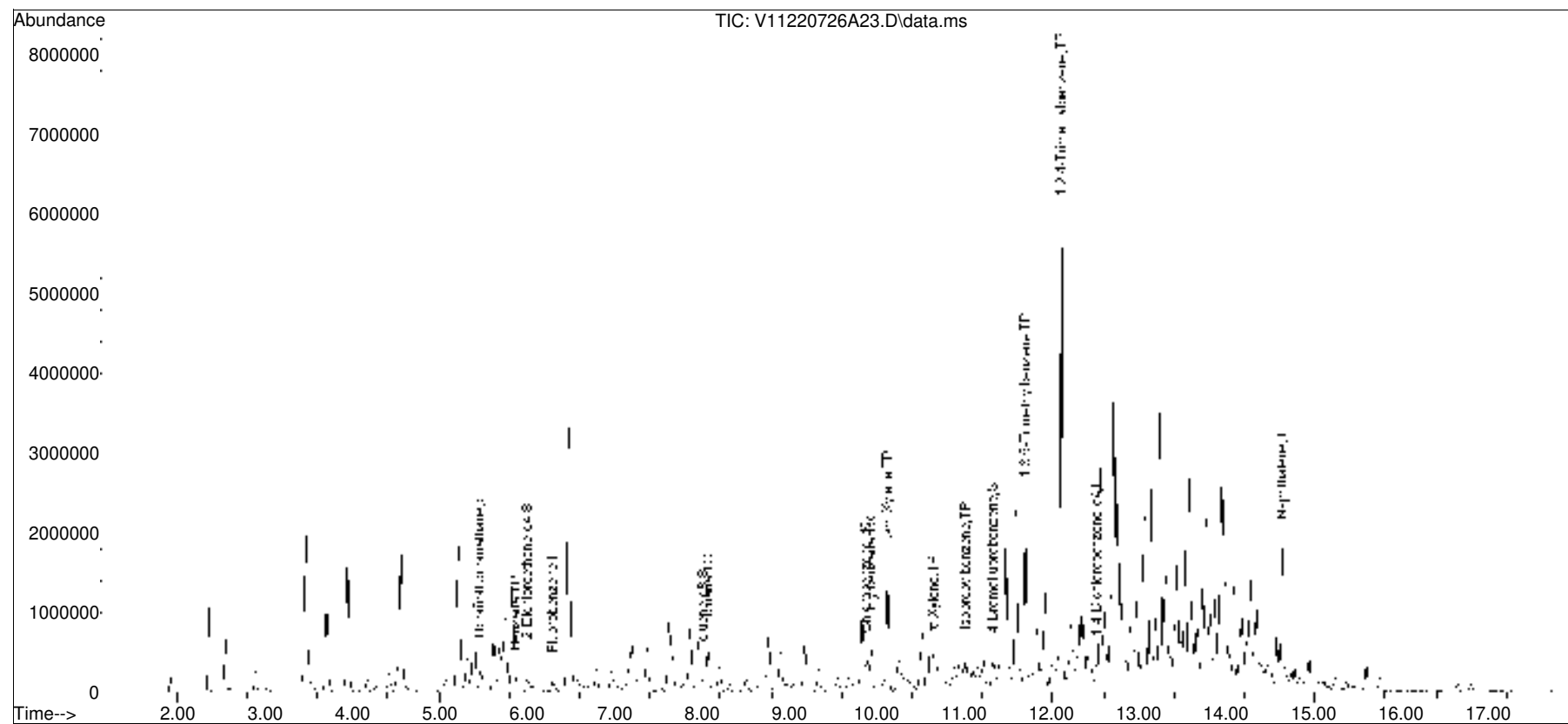


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220726\
Data File : V11220726A23.D
Acq On : 27 Jul 2022 12:48 am
Operator : VOA111:KJD
Sample : L2239626-06,31H,5.79,5,0.100,,A,R2F
Misc : WG1668060,ICAL19072
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 02 18:16:42 2022
Quant Method : I:\VOLATILES\VOA111\2022\220726A\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V11220726A01.D•

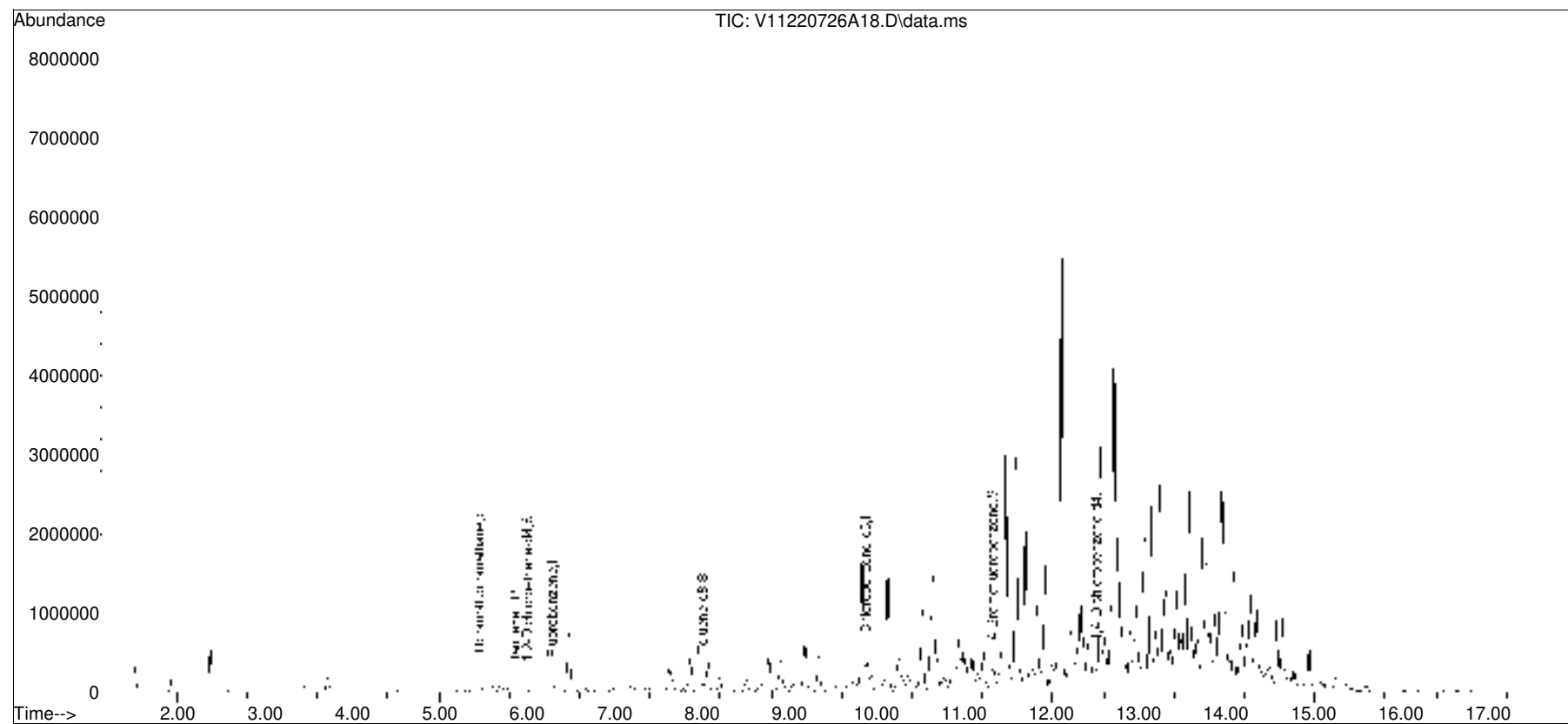


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220726\
Data File : V11220726A18.D
Acq On : 26 Jul 2022 10:34 pm
Operator : VOA111:NLK
Sample : L2239626-09,31,5.89,5,,B,R2F
Misc : WG1668055,ICAL19072
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 27 09:56:59 2022
Quant Method : I:\VOLATILES\VOA111\2022\220726A\V111_220608A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jun 09 10:30:20 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220726A\V11220726A01.D•

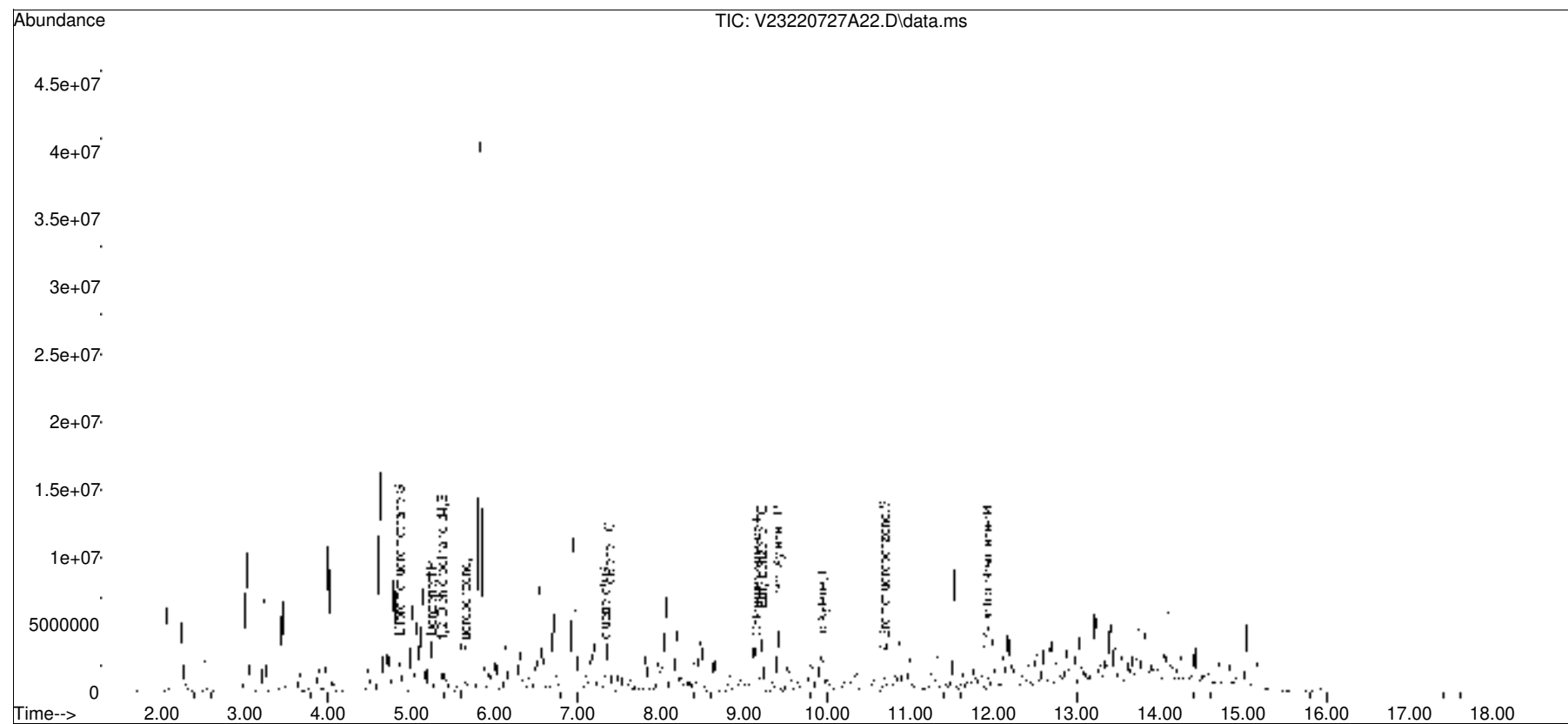


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220727A\
Data File : V23220727A22.D
Acq On : 27 Jul 2022 06:56 pm
Operator : VOA123:LAC
Sample : 12239626-10D,31h,6.22,5,0.050,,a,r2f
Misc : WG1668518,ICAL19190
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 27 21:20:46 2022
Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jul 19 09:34:38 2022
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List20727A\V23220727A01.D•

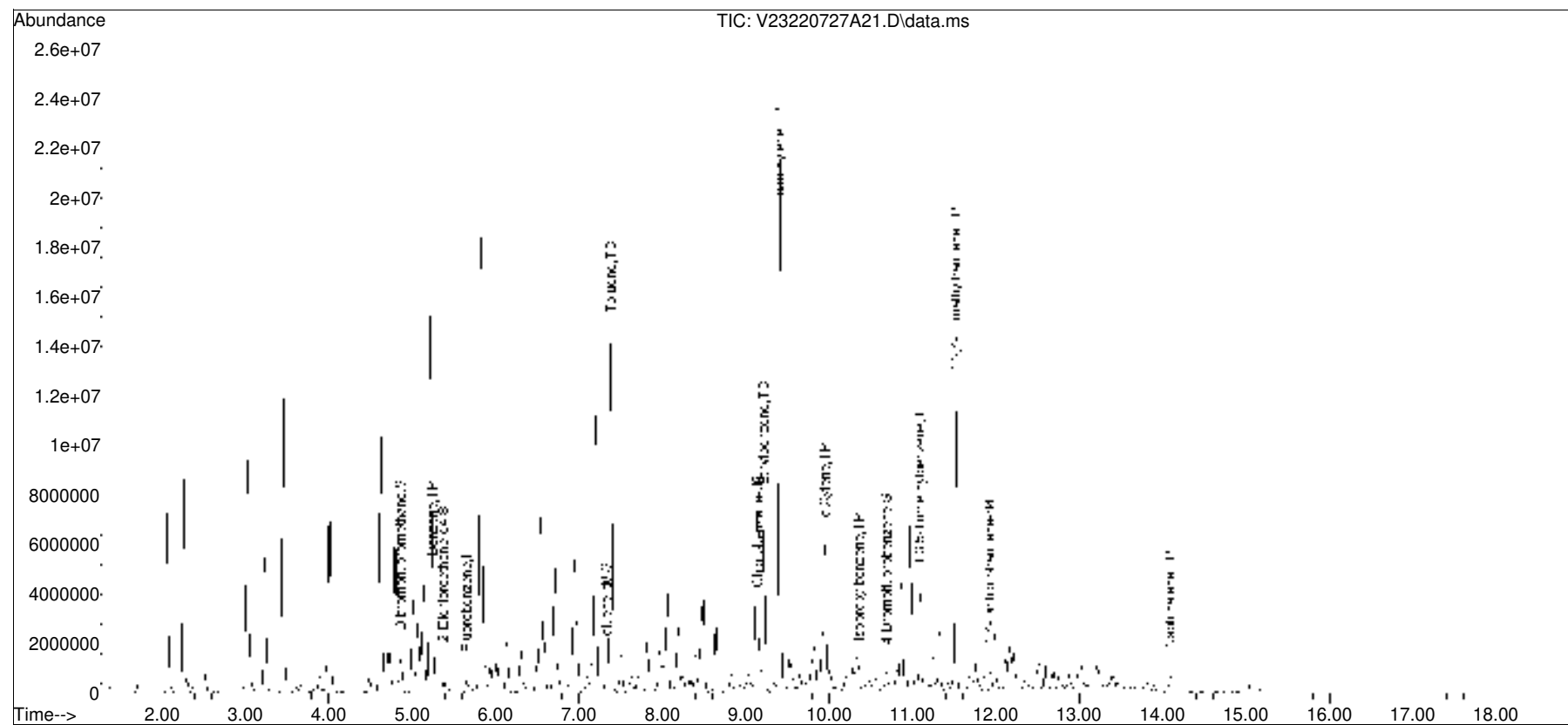


Quantitation Report (QT Reviewed)

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 Data File : V23220727A21.D
 Acq On : 27 Jul 2022 06:30 pm
 Operator : VOA123:LAC
 Sample : 12239626-14D, 31h, 5.10, 10, 0.010, , a, r2f
 Misc : WG1668518, ICAL19190
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 02 18:12:45 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220727A\V123_220718B_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jul 19 09:34:38 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list27A\V23220727A01.D•





ANALYTICAL REPORT

Lab Number:	L2239891
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/09/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239891-01	PB-253-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 09:00	07/26/22
L2239891-02	PB-253-02R-4.5-5.0	SOIL	PHILADELPHIA, PA	07/26/22 09:10	07/26/22
L2239891-03	PB-253-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 09:15	07/26/22
L2239891-04	PB-253-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 09:20	07/26/22
L2239891-05	PB-253-22-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 10:00	07/26/22
L2239891-06	PB-253-22-4.0-4.5	SOIL	PHILADELPHIA, PA	07/26/22 10:10	07/26/22
L2239891-07	PB-253-22-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 10:20	07/26/22
L2239891-08	PB-253-22-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 10:30	07/26/22
L2239891-09	PB-253-05R-0.0-0.5	SOIL	PHILADELPHIA, PA	07/26/22 11:10	07/26/22
L2239891-10	PB-253-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	07/26/22 11:20	07/26/22
L2239891-11	PB-253-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	07/26/22 11:25	07/26/22
L2239891-12	FB-072622	WATER	PHILADELPHIA, PA	07/26/22 12:00	07/26/22
L2239891-13	TB-072622	WATER	PHILADELPHIA, PA	07/26/22 00:00	07/26/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Case Narrative (continued)

Report Submission

August 09, 2022: This final report includes the results of all requested analyses.

August 02, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2239891-03: The sample was not appropriately preserved for the analysis of Volatile Organics-High Level. The methanol was not covering the soil. Please note, this vial was not utilized for analysis.

L2239891-11: The collection date and time on the chain of custody was 26-JUL-22 11:25; however, the collection date/time on the container label was 26-JUL-22 11:30. At the client's request, the collection date/time is reported as 26-JUL-22 11:25.

L2239891-11: At the client's request, this sample was placed on hold.

L2239891-13 (Trip Blank): Headspace was noted in the sample containers submitted for PA Volatile Organics - EPA 8260C. The analysis was performed at the client's request.

Volatile Organics


L2239891-02 and -03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (189% and 139%, respectively); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2239891-06D: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 08/09/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 09:32
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00054	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-02
 Client ID: PB-253-02R-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/22 17:58
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00053	0.00017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	189	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-03
 Client ID: PB-253-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:15
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/22 17:38
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00020	J	mg/kg	0.00047	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/22 10:50
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.050		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-12
 Client ID: FB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 12:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/29/22 14:18
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-13
 Client ID: TB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 00:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/29/22 14:39
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06 Batch: WG1668725-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/22 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1668729-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/29/22 08:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12-13 Batch: WG1669812-5					
Benzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/22 11:49
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1669976-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06 Batch: WG1668725-3 WG1668725-4								
Benzene	99		97		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	78		76		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	102		98		70-130
Dibromofluoromethane	85		84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1668729-3 WG1668729-4								
Benzene	99		97		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	78		76		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	102		98		70-130
Dibromofluoromethane	85		84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1669812-3 WG1669812-4								
Benzene	100		110		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		109		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	98		101		70-130
Dibromofluoromethane	98		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1669976-3 WG1669976-4								
Benzene	92		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		101		70-130
Toluene-d8	101		99		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	94		94		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/28/22 17:55
 Analyst: EK
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/27/22 18:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.052	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06 D
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 08/02/22 00:08
 Analyst: SLR
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/27/22 18:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	20.		mg/kg	1.9	0.24	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	92		23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	94		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-12
 Client ID: FB-072622
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 12:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/29/22 13:31
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 07/29/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.05	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	75		15-120
4-Terphenyl-d14	75		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/28/22 10:50
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 07/27/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,06 Batch: WG1668072-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	80		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	80		30-120
2,4,6-Tribromophenol	84		10-136
4-Terphenyl-d14	87		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/29/22 12:42
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 07/29/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 12 Batch: WG1668826-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	72		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,06 Batch: WG1668072-2 WG1668072-3								
Naphthalene	82		83		40-140	1		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	87		86		25-120
Phenol-d6	87		85		10-120
Nitrobenzene-d5	78		74		23-120
2-Fluorobiphenyl	89		88		30-120
2,4,6-Tribromophenol	94		90		10-136
4-Terphenyl-d14	87		87		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 12 Batch: WG1668826-2 WG1668826-3								
Naphthalene	67		72		40-140	7		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	63		71		23-120
2-Fluorobiphenyl	68		72		15-120
4-Terphenyl-d14	68		72		41-149

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-01
 Client ID: PB-253-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:00
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-02
 Client ID: PB-253-02R-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-03
 Client ID: PB-253-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 09:15
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2239891
Report Date: 08/09/22

SAMPLE RESULTS

Lab ID: L2239891-06
 Client ID: PB-253-22-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/22 10:10
 Date Received: 07/26/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	07/27/22 12:06	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2239891

Report Date: 08/09/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,06 QC Batch ID: WG1668005-1 QC Sample: L2239891-01 Client ID: PB-253-02R-0.0-0.5						
Solids, Total	84.4	84.5	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239891**Project Number:** 200.00135.006**Report Date:** 08/09/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-01A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-01B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-01C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-01D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		TS(7)
L2239891-01E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		PA-PAH(14)
L2239891-02A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-02B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-02C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-02D	Plastic 2oz unpreserved for TS	B	NA		2.5	Y	Absent		TS(7)
L2239891-03A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-03B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-03C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-03D	Plastic 2oz unpreserved for TS	B	NA		2.5	Y	Absent		TS(7)
L2239891-03X	Vial MeOH preserved split	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-04A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-04B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-04C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-04D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-04E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-05A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-05B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-05C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2239891**Project Number:** 200.00135.006**Report Date:** 08/09/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-05D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-05E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-06A	Vial MeOH preserved	B	NA		2.5	Y	Absent		PA-8260HLW(14)
L2239891-06B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-06C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	PA-8260HLW(14)
L2239891-06D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		TS(7)
L2239891-06E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		PA-PAH(14)
L2239891-07A	Vial MeOH preserved	B	NA		2.5	Y	Absent		HOLD-8260HLW(14)
L2239891-07B	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-07C	Vial water preserved	B	NA		2.5	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-07D	Plastic 120ml unpreserved	B	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2239891-07E	Glass 120ml/4oz unpreserved	B	NA		2.5	Y	Absent		HOLD-8270(14)
L2239891-08A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-08B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-08C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-08D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-08E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-09A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-09B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-09C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-09D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-09E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-10A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)
L2239891-10B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-10C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-10D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-10E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-11A	Vial MeOH preserved	A	NA		4.3	Y	Absent		HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:08092209:05
Lab Number: L2239891
Report Date: 08/09/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239891-11B	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-11C	Vial water preserved	A	NA		4.3	Y	Absent	27-JUL-22 09:50	HOLD-8260HLW(14)
L2239891-11D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		HOLD-WETCHEM()
L2239891-11E	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		HOLD-8270(14)
L2239891-12A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12C	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-12D	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2239891-12E	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2239891-13A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2239891-13B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2239891

Project Number: 200.00135.006

Report Date: 08/09/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

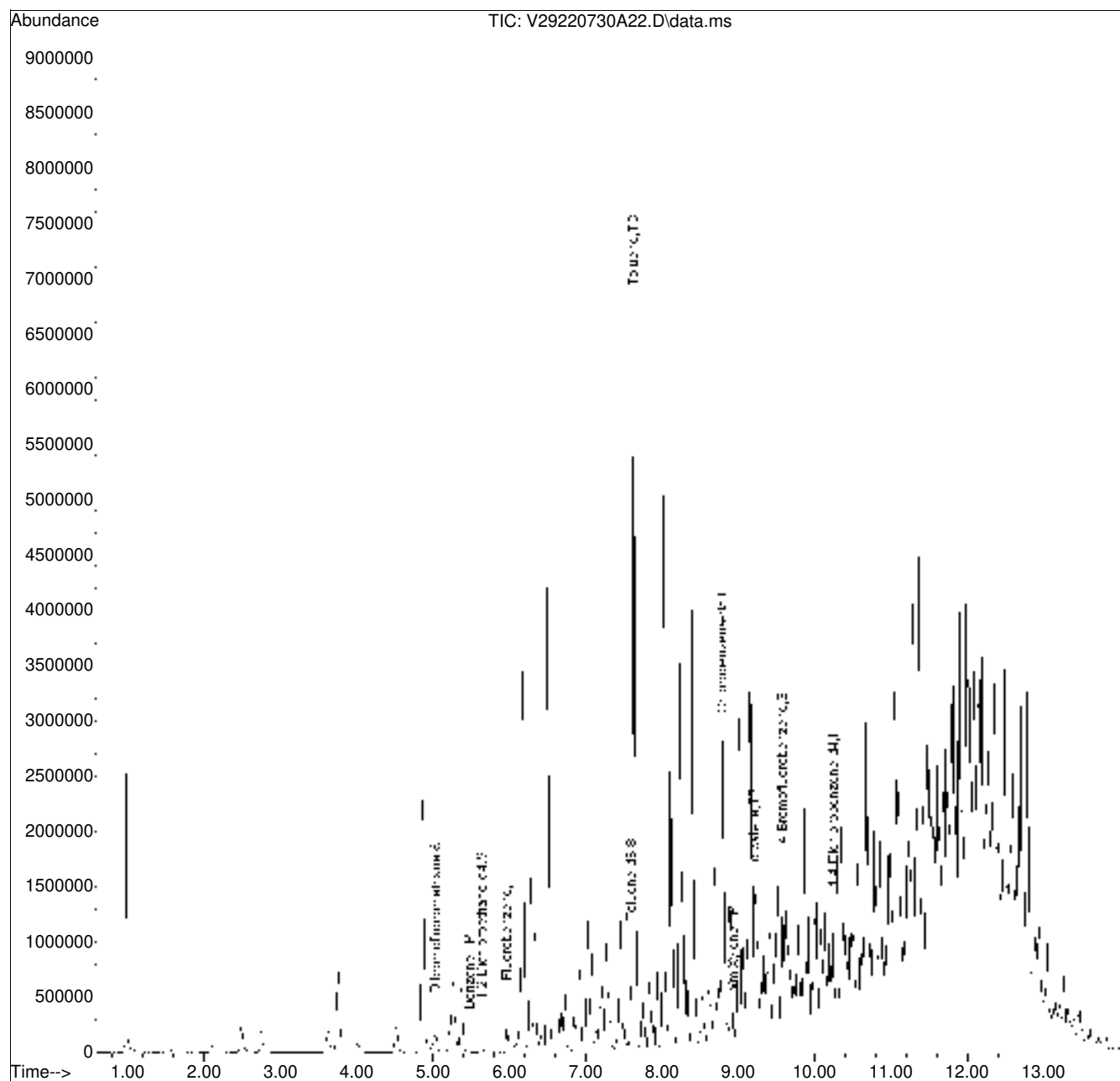
For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220730A\
Data File : V29220730A22.D
Acq On : 30 Jul 2022 05:38 pm
Operator : VOA129:AJK
Sample : L2239891-03,31,6.62,5,,B,R2F
Misc : WG1669976,ICAL19173
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 01 17:17:03 2022
Quant Method : I:\VOLATILES\VOA129\2022\220730A\V129_220712N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 14 08:00:36 2022
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List20730A\V29220730A01.D•





ANALYTICAL REPORT

Lab Number:	L2240449
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	08/02/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2240449-01	PB-253-02R-6.0-6.5-1	SOIL	PHILADELPHIA, PA	07/28/22 13:30	07/28/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The client ID was specified by the client.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 08/02/22

ORGANICS

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

SAMPLE RESULTS

Lab ID: L2240449-01
 Client ID: PB-253-02R-6.0-6.5-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/28/22 13:30
 Date Received: 07/28/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/29/22 21:01
 Analyst: ALS
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/29/22 04:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	63		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/29/22 20:37
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 07/29/22 04:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1668821-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	77		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2240449

Project Number: 200.00135.006

Report Date: 08/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1668821-2 WG1668821-3								
Naphthalene	74		72		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		80		23-120
2-Fluorobiphenyl	74		76		30-120
4-Terphenyl-d14	78		78		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

SAMPLE RESULTS

Lab ID: L2240449-01
Client ID: PB-253-02R-6.0-6.5-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/28/22 13:30
Date Received: 07/28/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/29/22 07:18	121,2540G	RI



Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1668838-1 QC Sample: L2240262-36 Client ID: DUP Sample						
Solids, Total	81.4	81.6	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2240449**Project Number:** 200.00135.006**Report Date:** 08/02/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information**Container ID** **Container Type**

L2240449-01A Glass 250ml/8oz unpreserved

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
A	NA		4.9	Y	Absent		TS(7),PA-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2240449
Report Date: 08/02/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2240449

Project Number: 200.00135.006

Report Date: 08/02/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2242836
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY AST CLOS
Project Number:	200.00135.013
Report Date:	08/11/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2242836-01	PB-253-19-7.5-8.0	SOIL	PHILADELPHIA, PA	08/09/22 12:00	08/09/22
L2242836-02	PB-253-20-10.0-10.5	SOIL	PHILADELPHIA, PA	08/09/22 12:25	08/09/22
L2242836-03	PB-253-22-10.0-10.5	SOIL	PHILADELPHIA, PA	08/09/22 12:40	08/09/22
L2242836-04	PB-253-23-0.0-0.5	SOIL	PHILADELPHIA, PA	08/09/22 12:55	08/09/22
L2242836-05	PB-253-23-4.0-4.5	SOIL	PHILADELPHIA, PA	08/09/22 13:15	08/09/22
L2242836-06	PB-253-23-6.0-6.5	SOIL	PHILADELPHIA, PA	08/09/22 13:30	08/09/22
L2242836-07	PB-253-23-14.0-14.5	SOIL	PHILADELPHIA, PA	08/09/22 13:40	08/09/22
L2242836-08	PB-253-24-0.0-0.5	SOIL	PHILADELPHIA, PA	08/09/22 14:00	08/09/22
L2242836-09	PB-253-24-4.0-4.5	SOIL	PHILADELPHIA, PA	08/09/22 14:10	08/09/22
L2242836-10	PB-253-24-6.0-6.5	SOIL	PHILADELPHIA, PA	08/09/22 14:20	08/09/22
L2242836-11	PB-253-24-14.0-14.5	SOIL	PHILADELPHIA, PA	08/09/22 14:30	08/09/22
L2242836-12	PB-253-25-0.0-0.5	SOIL	PHILADELPHIA, PA	08/09/22 14:45	08/09/22
L2242836-13	PB-253-25-4.0-4.5	SOIL	PHILADELPHIA, PA	08/09/22 14:50	08/09/22
L2242836-14	PB-253-25-6.0-6.5	SOIL	PHILADELPHIA, PA	08/09/22 15:00	08/09/22
L2242836-15	PB-253-25-14.0-14.5	SOIL	PHILADELPHIA, PA	08/09/22 15:10	08/09/22

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Case Narrative (continued)

Report Submission

August 11, 2022: This final report includes the results of all requested analyses.

August 11, 2022: This preliminary report includes the results of the Volatile Organics analysis performed on L2242836-03, -06, -08, -10, -11, -12, -14, and -15.

August 10, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2242836-02: The sample identified as "PB-253-20-10.0-10.5" on the chain of custody was identified as "PB-253-20-SS01" on the container label. At the client's request, the sample is reported as "PB-253-20-10.0-10.5".

Volatile Organics

L2242836-03D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2242836-03D: The surrogate recovery is outside the method acceptance criteria for and dibromofluoromethane (61%) due to interference with the Internal Standard.

L2242836-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2242836-10D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

L2242836-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (705%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Case Narrative (continued)

chromatogram is included as an attachment to this report.

L2242836-14D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (54%) due to interference with the Internal Standard.

L2242836-15D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (62%) due to interference with the Internal Standard.

L2242836-15D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (157%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 08/11/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-01 D
 Client ID: PB-253-19-7.5-8.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/10/22 07:34
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	43.		mg/kg	1.3	0.43	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-02
 Client ID: PB-253-20-10.0-10.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:25
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/10/22 08:00
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.22		mg/kg	0.035	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-03 D
 Client ID: PB-253-22-10.0-10.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:40
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 08:56
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	84.		mg/kg	0.52	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	145	Q	70-130
Dibromofluoromethane	61	Q	70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-05
 Client ID: PB-253-23-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 13:15
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/10/22 09:44
 Analyst: NLK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0027		mg/kg	0.00047	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	168	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-06
 Client ID: PB-253-23-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 13:30
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 10:52
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.015		mg/kg	0.00048	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-08
 Client ID: PB-253-24-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 11:15
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00094	J	mg/kg	0.0013	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	94		70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-09 D
 Client ID: PB-253-24-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:10
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/10/22 08:52
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	2.2		mg/kg	0.12	0.041	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	75		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	73		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-10 D
 Client ID: PB-253-24-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:20
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 09:19
 Analyst: NLK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	8.2		mg/kg	0.059	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	65	Q	70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-11
 Client ID: PB-253-24-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:30
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 09:42
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.1		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	77		70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-12
 Client ID: PB-253-25-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:45
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 11:38
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.076		mg/kg	0.00062	0.00021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	79		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	705	Q	70-130
Dibromofluoromethane	81		70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-13 D
 Client ID: PB-253-25-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:50
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/10/22 09:18
 Analyst: NLK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	13.		mg/kg	0.59	0.20	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	80		70-130



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-14 D
 Client ID: PB-253-25-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 15:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 10:05
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	31.		mg/kg	0.061	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	54	Q	70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-15 D
 Client ID: PB-253-25-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 15:10
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/11/22 10:29
 Analyst: NLK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	28.		mg/kg	0.053	0.018	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	157	Q	70-130
Dibromofluoromethane	62	Q	70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/10/22 07:02
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02,09,13 Batch: WG1673522-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/10/22 07:02
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1673523-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 08/11/22 08:33
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,10-11,14-15 Batch: WG1674128-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/11/22 08:33
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,08,12 Batch: WG1674131-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	91		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02,09,13 Batch: WG1673522-3 WG1673522-4								
Benzene	91		89		70-130	2		30

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	82		80		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		97		70-130
Dibromofluoromethane	85		86		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1673523-3 WG1673523-4								
Benzene	91		89		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		80		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		97		70-130
Dibromofluoromethane	85		86		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,10-11,14-15 Batch: WG1674128-3 WG1674128-4								
Benzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		80		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	100		103		70-130
Dibromofluoromethane	87		88		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,08,12 Batch: WG1674131-3 WG1674131-4								
Benzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		80		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	100		103		70-130
Dibromofluoromethane	87		88		70-130



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-01
 Client ID: PB-253-19-7.5-8.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	08/10/22 03:04	121,2540G	MA



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-02
 Client ID: PB-253-20-10.0-10.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:25
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	08/10/22 03:04	121,2540G	MA



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-03
 Client ID: PB-253-22-10.0-10.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 12:40
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-05
 Client ID: PB-253-23-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 13:15
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.5		%	0.100	NA	1	-	08/10/22 03:04	121,2540G	MA



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-06
 Client ID: PB-253-23-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 13:30
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-08
 Client ID: PB-253-24-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-09
 Client ID: PB-253-24-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:10
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	08/10/22 03:04	121,2540G	MA



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-10
 Client ID: PB-253-24-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:20
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-11
 Client ID: PB-253-24-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:30
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-12
 Client ID: PB-253-25-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:45
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-13
 Client ID: PB-253-25-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 14:50
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	08/10/22 03:04	121,2540G	MA



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-14
 Client ID: PB-253-25-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 15:00
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

SAMPLE RESULTS

Lab ID: L2242836-15
 Client ID: PB-253-25-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 08/09/22 15:10
 Date Received: 08/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	08/10/22 18:53	121,2540G	MF



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,05,09,13 QC Batch ID: WG1673295-1 QC Sample: L2242675-01 Client ID: DUP Sample						
Solids, Total	83.4	83.5	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 03,06,08,10-12,14-15 QC Batch ID: WG1673782-1 QC Sample: L2241287-01 Client ID: DUP Sample						
Solids, Total	96.6	96.6	%	0		20

Project Name: PHILADELPHIA REFINERY AST CLOS**Lab Number:** L2242836**Project Number:** 200.00135.013**Report Date:** 08/11/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2242836-01A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-01B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-01C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-01D	Plastic 2oz unpreserved for TS	A	NA		4.8	Y	Absent		TS(7)
L2242836-02A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-02B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-02C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-02D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-03A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-03B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-03C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-03D	Plastic 2oz unpreserved for TS	A	NA		4.8	Y	Absent		TS(7)
L2242836-04A	Vial MeOH preserved	A	NA		4.8	Y	Absent		HOLD-8260HLW(14)
L2242836-04B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	HOLD-8260HLW(14)
L2242836-04C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	HOLD-8260HLW(14)
L2242836-04D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		HOLD-WETCHEM()
L2242836-05A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-05B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-05C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-05D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-06A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-06B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-06C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY AST CLOS**Lab Number:** L2242836**Project Number:** 200.00135.013**Report Date:** 08/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2242836-06D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-07A	Vial MeOH preserved	A	NA		4.8	Y	Absent		HOLD-8260HLW(14)
L2242836-07B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	HOLD-8260HLW(14)
L2242836-07C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	HOLD-8260HLW(14)
L2242836-07D	Plastic 2oz unpreserved for TS	A	NA		4.8	Y	Absent		HOLD-WETCHEM()
L2242836-08A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-08B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-08C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-08D	Plastic 2oz unpreserved for TS	A	NA		4.8	Y	Absent		TS(7)
L2242836-09A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-09B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-09C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-09D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-10A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-10B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-10C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-10D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-11A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-11B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-11C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-11D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-12A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-12B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-12C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-12D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-13A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-13B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-13C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY AST CLOS**Lab Number:** L2242836**Project Number:** 200.00135.013**Report Date:** 08/11/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2242836-13D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-14A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-14B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-14C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-14D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)
L2242836-15A	Vial MeOH preserved	A	NA		4.8	Y	Absent		PA-8260HLW(14)
L2242836-15B	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-15C	Vial water preserved	A	NA		4.8	Y	Absent	10-AUG-22 04:03	PA-8260HLW(14)
L2242836-15D	Plastic 120ml unpreserved	A	NA		4.8	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY AST CLOS
Project Number: 200.00135.013

Lab Number: L2242836
Report Date: 08/11/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY PAGE 1 OF 2



Project Information

Project Name: Philadelphia Refinery
AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.085 *013*

Project Manager: William Schmidt

ALPHA Quote #: 18588 *18559*

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

24-Hour

Due Date: _____ Time: _____

Westborough, MA Mansfield, MA
TEL: 508-898-9320 TEL: 508-822-8300
FAX: 508-896-9193 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax: _____

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

"Report only attached project-specific analyte list" of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcglobal.com

Date Rec'd in Lab: *8/10/22*

ALPHA Job #: *L2242836*

Report Information Data Deliverables

FAX EMAIL
 ADEs Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: _____

Criteria: _____

ANALYSIS

BENZENE (8260)

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time			1	2	3	4	5	6	7	8	9	10			
42836-01	PB-253-19-7.5-8.0	8/9	1200	5	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
02	PB-253-20-10.0-10.5		1225			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
03	PB-253-22-10.0-10.5		1240			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
04	PB-253-23-0.0-0.5		1255			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
05	PB-253-23-4.0-4.5		1315			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
06	PB-253-23-6.0-6.5		1330			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
07	PB-253-23-14.0-14.5		1340			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
08	PB-253-24-0.0-0.5		1400			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD
09	PB-253-24-4.0-4.5		1410			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	PB-253-24-6.0-6.5		1420			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD

Container Type: _____

Preservative: _____

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Retrieved By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	8/9	JONESAL	8-9-2015
<i>[Signature]</i>	8/9/22 1:00	<i>[Signature]</i>	8/9/22 2:00
<i>[Signature]</i>	8/10/22 2:00	<i>[Signature]</i>	8/10/22 2:00

CHAIN OF CUSTODY

PAGE 1 OF 1



Westborough, MA
TEL: 508-898-8220
FAX: 508-898-0195

Mansfield, MA
TEL: 508-822-8300
FAX: 508-823-9288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery
AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.096 *2013*
Project Manager: William Schmidt
ALPHA Quote #: 18599 *18559*

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
Due Date: *24-Hour*
Time:

Other Project Specific Requirements/Comments/Detection Limits:
Report only attached project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to etd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilooglobal.com

Date Rec'd in Lab: *8/10/22* ALPHA Job #: *W2242836*

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client info PO #: 3562
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits
State/Fed Program: Criteria:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
42836-11	PB-253-2A-1A.0-1A.5	8/9	1130	S	TS
12	PB-253-25-0.0-0.5	↓	1415	↓	↓
13	PB-253-25-4.0-4.5		1450		
14	PB-253-25-6.0-6.5		1500		
15	PB-253-25-1A.0-1A.5		1510		

ANALYSIS	SAMPLE HANDLING																TOTAL # BOTTLES	
	Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)																	
BENZENE (8260)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Container Type: G Preservative: -

Released By: *[Signature]* Date/Time: *8/9 1511* Received By: *[Signature]* Date/Time: *8/9/22 1520*

[Signature] *[Signature]* *[Signature]* *[Signature]*

[Signature] *[Signature]* *[Signature]* *[Signature]*

[Signature] *[Signature]* *[Signature]* *[Signature]*

[Signature] *[Signature]* *[Signature]* *[Signature]*

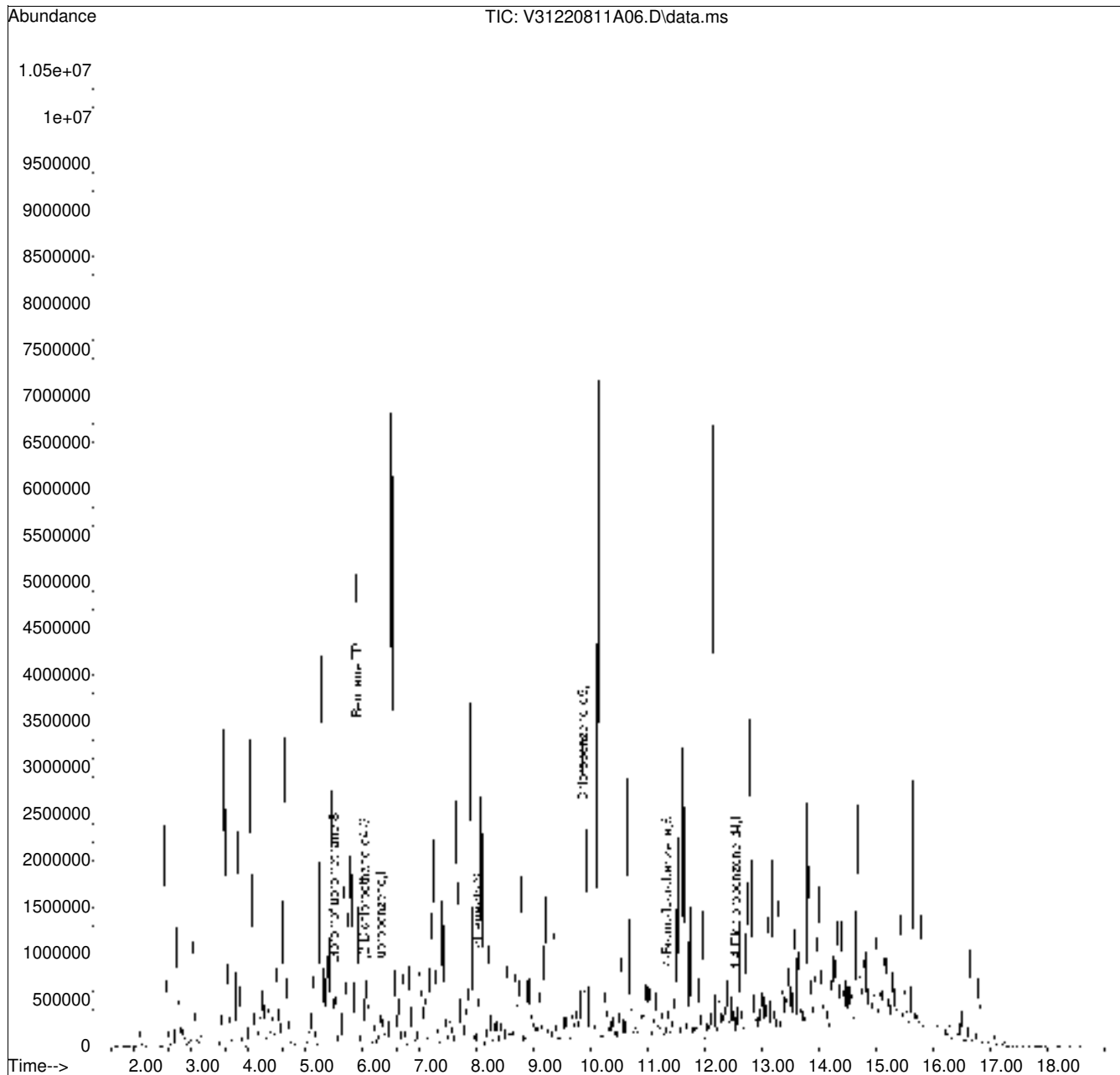
[Signature] *[Signature]* *[Signature]* *[Signature]*

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220811A\
 Data File : V31220811A06.D
 Acq On : 11 Aug 2022 08:56 am
 Operator : VOA131:NLK
 Sample : L2242836-03D,31H,6.48,10,0.01,,A,R3A
 Misc : WG1674128,ICAL19050
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 11 09:19:22 2022
 Quant Method : I:\VOLATILES\VOA131\2022\220811A\V31_220525N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue May 31 11:11:48 2022
 Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220811A\V31220811A01.D•

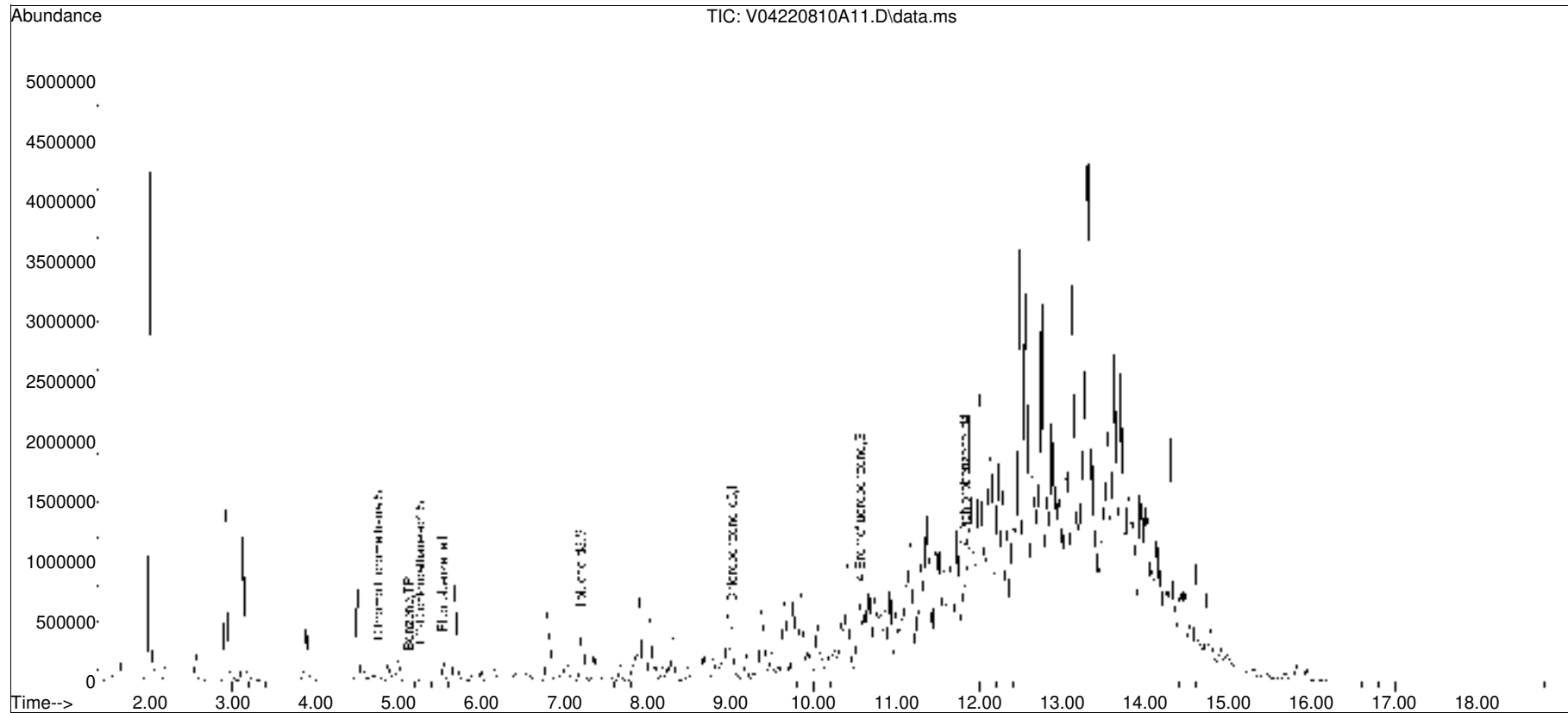


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220810A\
Data File : V04220810A11.D
Acq On : 10 Aug 2022 9:44 am
Operator : VOA104:NLK
Sample : L2242836-05,31,5.88,5,,C,R3A
Misc : WG1673523,ICAL19119
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 10 10:17:00 2022
Quant Method : I:\VOLATILES\VOA104\2022\220810A\V104_220621A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 22 06:56:43 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220810A\V04220810A01.D•

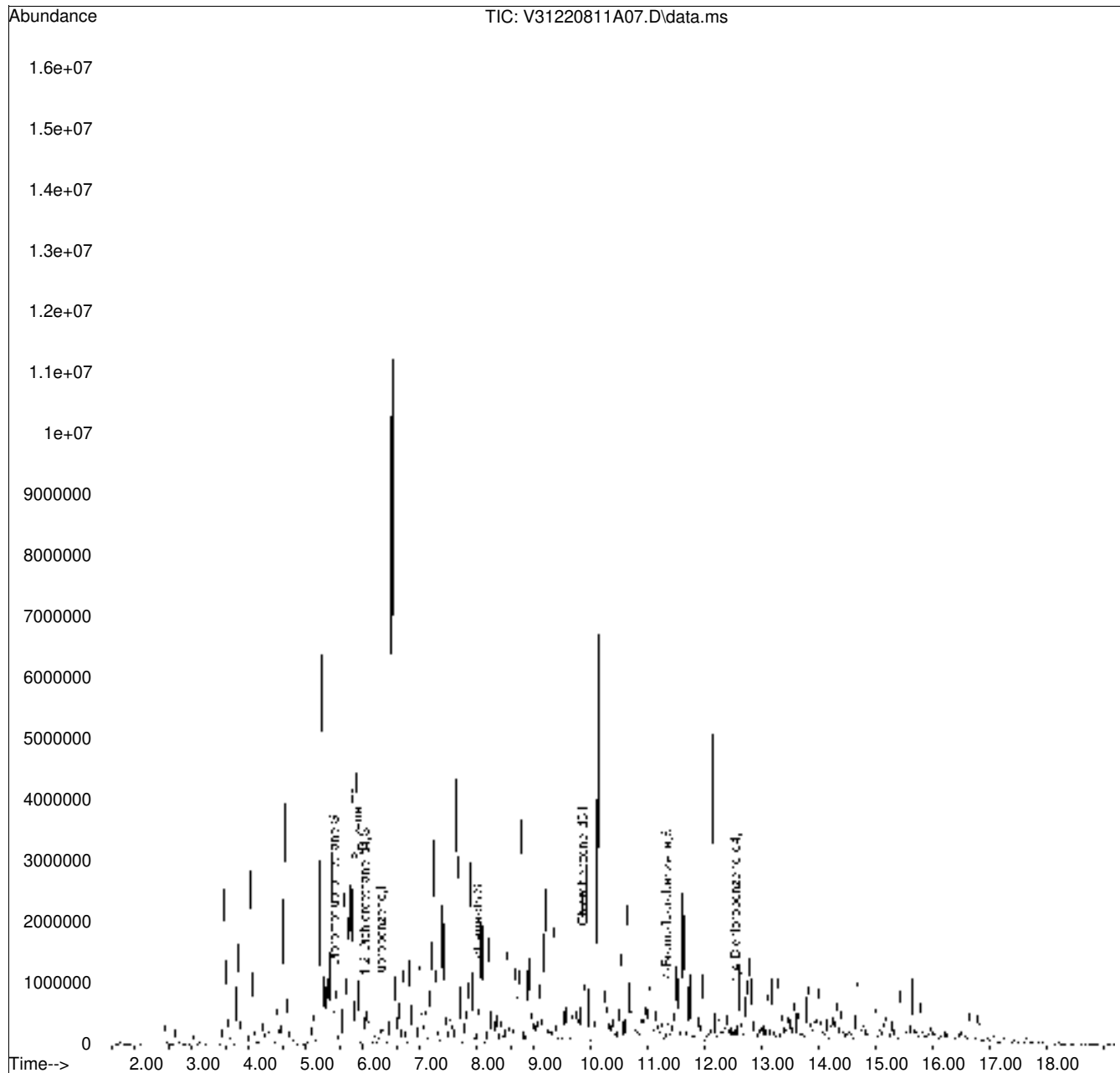


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220811A\
Data File : V31220811A07.D
Acq On : 11 Aug 2022 09:19 am
Operator : VOA131:NLK
Sample : L2242836-10D,31H,5.86,5,0.05,,A,R3A
Misc : WG1674128,ICAL19050
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 11 09:53:37 2022
Quant Method : I:\VOLATILES\VOA131\2022\220811A\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220811A\V31220811A01.D•

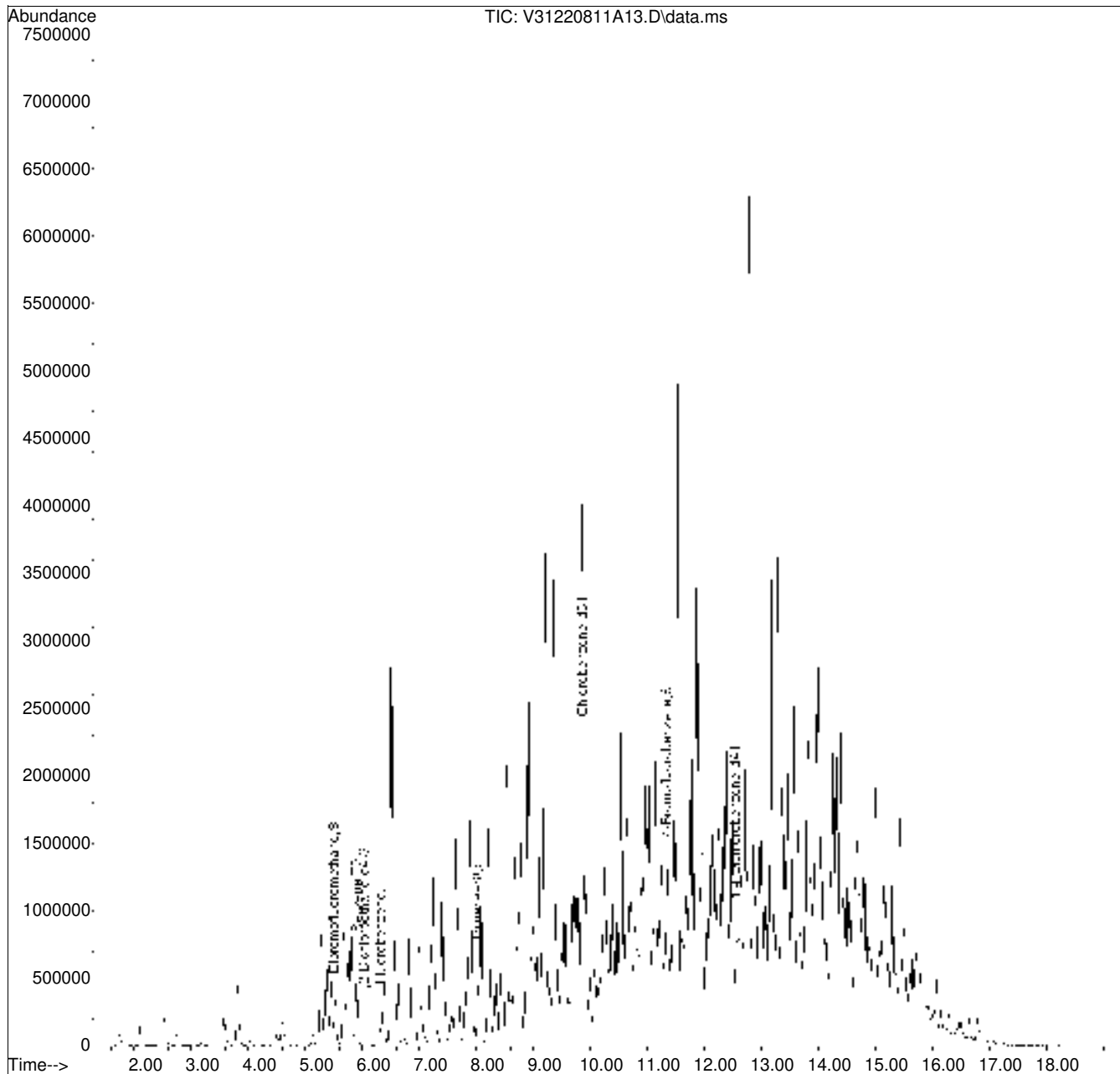


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220811A\
Data File : V31220811A13.D
Acq On : 11 Aug 2022 11:38 am
Operator : VOA131:NLK
Sample : L2242836-12,31,4.64,5,,C,R3A
Misc : WG1674131,ICAL19050
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 11 11:54:33 2022
Quant Method : I:\VOLATILES\VOA131\2022\220811A\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220811A\V31220811A01.D•

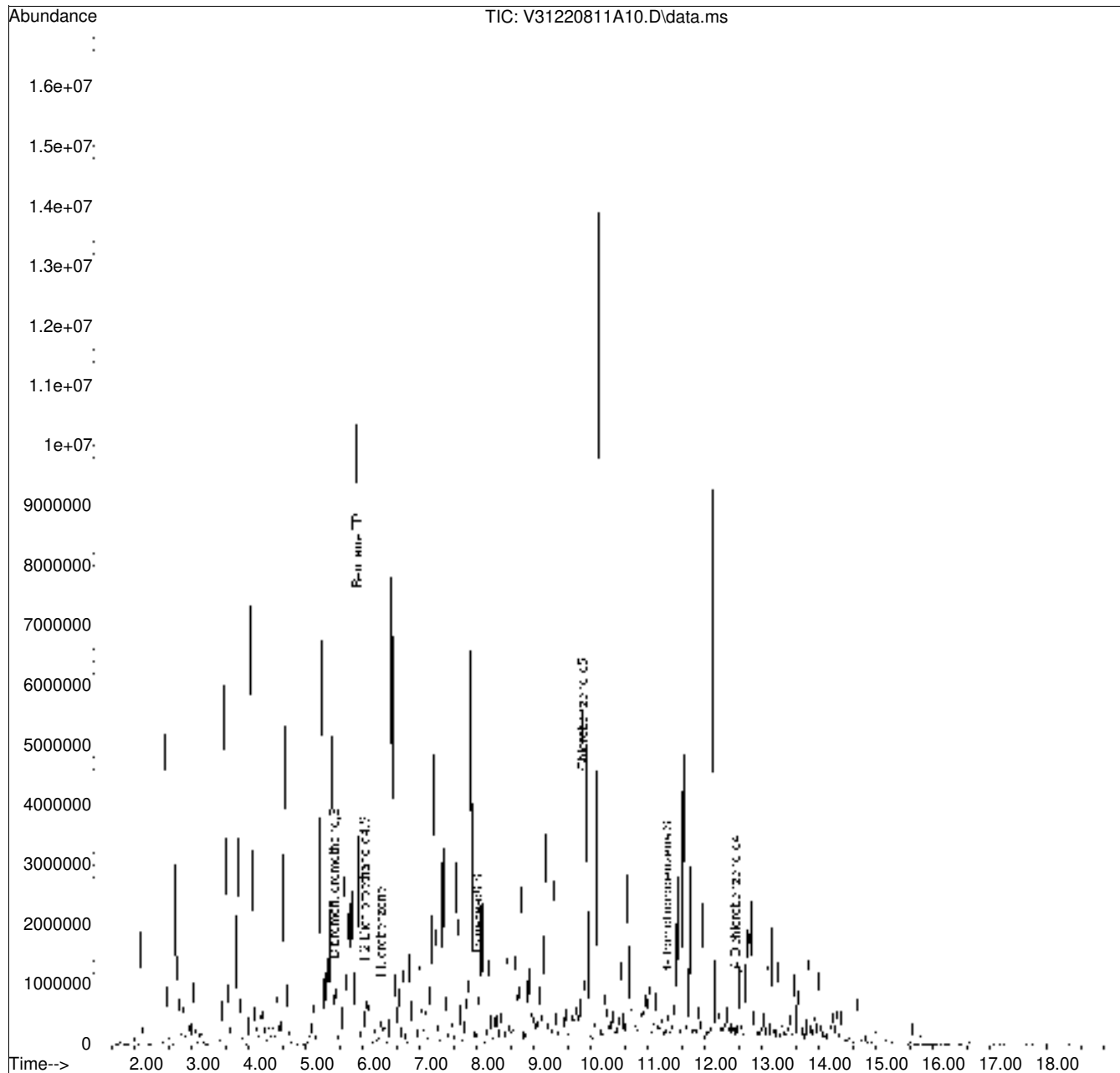


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\220811A\
Data File : V31220811A10.D
Acq On : 11 Aug 2022 10:29 am
Operator : VOA131:NLK
Sample : L2242836-15D,31H,6.08,5,0.05,,A,R3A
Misc : WG1674128,ICAL19050
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 11 11:49:53 2022
Quant Method : I:\VOLATILES\VOA131\2022\220811A\V31_220525N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue May 31 11:11:48 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220811A\V31220811A01.D•





ANALYTICAL REPORT

Lab Number:	L2256785
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	11/11/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2256785-01	TG05MW01-NAPL-221012	OIL	PHILADELPHIA, PA	10/12/22 09:40	10/12/22
L2256785-02	S240-NAPL-221012	OIL	PHILADELPHIA, PA	10/12/22 10:20	10/12/22
L2256785-03	S233-GW-221012	WATER	PHILADELPHIA, PA	10/12/22 14:00	10/12/22
L2256785-04	S235-NAPL-221012	OIL	PHILADELPHIA, PA	10/12/22 10:10	10/12/22
L2256785-05	TG05MW01-GW-221012	WATER	PHILADELPHIA, PA	10/12/22 12:10	10/12/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Case Narrative (continued)

Report Revision

November 11, 2022: At the client's request, the Saturated Hydrocarbons narrative has been revised.

Report Submission

November 09, 2022: This final report includes the results of all requested analyses.

October 20, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2256785-01 through -05: The Client ID was specified by the client.

PAHs/Biomarkers

L2256785-01D, -02D, and -04D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Semivolatile Organics by SIM

L2256785-05: The surrogate recovery was outside the acceptance criteria for nitrobenzene-d5 (7%); however, re-extraction could not be performed due to lack of additional sample.

Saturated Hydrocarbons

L2256785-01, -02, and -04: The samples were extracted and then analyzed using a gas chromatograph equipped with a flame ionization detector (GC/FID). The temperature program and associated experimental conditions were optimized to obtain maximum resolution in an eighty minute chromatographic run representative of hydrocarbons in the n-Octane (C8) to n-Tetracontane (C40) range. Qualitative evaluation of the samples was conducted by reviewing the sample chromatograms in conjunction with a chromatogram of a

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

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Report Date: 11/11/22

Case Narrative (continued)

normal alkane series generated with the same chromatographic conditions. Chromatograms of hydrocarbon reference materials obtained from our library of 82 reference standards were also utilized to provide the best possible sample match. Quantitative determination of the samples' hydrocarbon concentrations was performed in accordance with EPA Method 8015M. The samples' total hydrocarbon concentrations and all associated quality control data are included in the report.

The following qualitative information is based on a tentative interpretation of chromatographic pattern recognition and boiling point ranges:

Total Petroleum Hydrocarbon Identification

L2256785-01 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Octacosane (C28). Based on the data generated, L2256785-01 contains a combination of materials eluting in the low to mid weight ranges of the chromatogram. The first material present appears to be petroleum in nature and resembles gasoline. The second material present is similar to Fuel Oil #2/Diesel Fuel. In an analysis of an undegraded product the n-alkanes are typically the dominant constituents, as seen in the petroleum reference chromatogram. As the product deteriorates, the n-alkanes are preferentially degraded, leaving behind other constituents such as isoprenoids. The analytical testing of the sample identified a pattern of isoprenoids. The level of alkanes and their ratios to the isoprenoids present indicates that the fuel oil has undergone degradation.

L2256785-02 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Octacosane (C28). Based on the data generated, L2256785-02 contains a combination of materials eluting in the low to mid weight ranges of the chromatogram. The first material present appears to be petroleum in nature and resembles gasoline. The second material present is similar to Fuel Oil #2/Diesel Fuel. In an analysis of an undegraded product the n-alkanes are typically the dominant constituents, as seen in the petroleum reference chromatogram. As the product deteriorates, the n-alkanes are preferentially degraded, leaving behind other constituents such as isoprenoids. The analytical testing of the sample identified a pattern of isoprenoids. The level of alkanes and their ratios to the isoprenoids present indicates that the fuel oil has undergone degradation.

L2256785-04 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

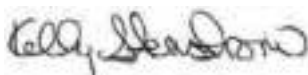
Lab Number: L2256785
Report Date: 11/11/22

Case Narrative (continued)

Octacosane (C28). Based on the data generated, L2256785-04 contains a combination of materials eluting in the low to mid weight ranges of the chromatogram. The first material present appears to be petroleum in nature and resembles gasoline. The second material present is similar to Fuel Oil #2/Diesel Fuel. In an analysis of an undegraded product the n-alkanes are typically the dominant constituents, as seen in the petroleum reference chromatogram. As the product deteriorates, the n-alkanes are preferentially degraded, leaving behind other constituents such as isoprenoids. The analytical testing of the sample identified a pattern of isoprenoids. The level of alkanes and their ratios to the isoprenoids present indicates that the fuel oil has undergone degradation.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 11/11/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8260D
 Analytical Date: 10/14/22 22:37
 Analyst: RAY
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	98.3	14.6	10
Isopentane	2400		mg/kg	98.3	18.0	10
1-Pentene	21.8	J	mg/kg	98.3	17.9	10
2-Methyl-1-Butene	320		mg/kg	98.3	15.3	10
Pentane	2020		mg/kg	98.3	30.7	10
trans-2-Pentene	85.8	J	mg/kg	98.3	13.3	10
Isoprene	ND		mg/kg	98.3	17.6	10
cis-2-Pentene	62.9	J	mg/kg	98.3	15.8	10
Tertiary Butanol	ND		mg/kg	1230	159.	10
2,2-Dimethylbutane	133		mg/kg	98.3	30.3	10
4-Methyl-1-pentene	38.5	J	mg/kg	98.3	15.3	10
Cyclopentane	318		mg/kg	98.3	25.5	10
2,3-Dimethylbutane	400		mg/kg	98.3	40.6	10
2-Methylpentane	2020		mg/kg	98.3	26.6	10
Methyl tert butyl ether	ND		mg/kg	98.3	20.2	10
3-Methylpentane	1380		mg/kg	98.3	15.6	10
1-Hexene	33.9	J	mg/kg	98.3	13.8	10
n-Hexane	2220		mg/kg	98.3	16.2	10
Isopropyl Ether	ND		mg/kg	98.3	11.9	10
trans-2-Hexene	35.3	J	mg/kg	98.3	12.8	10
2-Methyl-2-pentene	277		mg/kg	98.3	15.0	10
cis-2-Hexene	23.6	J	mg/kg	98.3	13.3	10
Ethyl-Tert-Butyl-Ether	ND		mg/kg	98.3	14.9	10
2,2-Dimethylpentane	87.4	J	mg/kg	98.3	13.2	10
Methylcyclopentane	2120		mg/kg	98.3	13.2	10
2,4-Dimethylpentane	229		mg/kg	98.3	12.1	10
2,2,3-Trimethylbutane	29.4	J	mg/kg	98.3	13.3	10
1,2-Dichloroethane	ND		mg/kg	98.3	14.5	10



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	63.1	J	mg/kg	98.3	18.3	10
Cyclohexane	1480		mg/kg	98.3	12.1	10
2-Methylhexane	1240		mg/kg	98.3	15.5	10
Benzene	218		mg/kg	98.3	15.0	10
2,3-Dimethylpentane	478		mg/kg	98.3	13.0	10
Thiophene	ND		mg/kg	98.3	14.0	10
1,1-Dimethylcyclopentane	271		mg/kg	98.3	11.8	10
3-Methylhexane	1300		mg/kg	98.3	15.7	10
Tertiary-Amyl Methyl Ether	ND		mg/kg	98.3	12.1	10
3-Ethylpentane	116		mg/kg	98.3	14.2	10
1-Heptene/1,2-DMCP (trans)	1320		mg/kg	197	28.8	10
Isooctane	220		mg/kg	98.3	10.7	10
trans-3-Heptene	ND		mg/kg	98.3	15.3	10
Heptane	2250		mg/kg	98.3	17.1	10
trans-2-Heptene	ND		mg/kg	98.3	12.6	10
cis-2-Heptene	ND		mg/kg	98.3	19.0	10
2,2-Dimethylhexane	71.2	J	mg/kg	98.3	14.2	10
Methylcyclohexane	4150		mg/kg	98.3	13.3	10
2,5-Dimethylhexane	228		mg/kg	98.3	17.1	10
2,4-Dimethylhexane	293		mg/kg	98.3	11.9	10
Ethylcyclopentane	368		mg/kg	98.3	13.0	10
2,2,3-Trimethylpentane	32.7	J	mg/kg	98.3	17.0	10
2,3,4-Trimethylpentane	170		mg/kg	98.3	12.8	10
2,3,3-Trimethylpentane	173		mg/kg	98.3	19.5	10
2,3-Dimethylhexane	212		mg/kg	98.3	23.8	10
2-Methylheptane	1410		mg/kg	98.3	16.6	10
4-Methylheptane	410		mg/kg	98.3	16.9	10
3-Methylheptane	970		mg/kg	98.3	14.0	10
3-Ethylhexane	172		mg/kg	98.3	17.6	10
Toluene	221		mg/kg	98.3	13.3	10
2-Methylthiophene	ND		mg/kg	98.3	8.36	10
1,4-Dimethylcyclohexane (trans)	664		mg/kg	98.3	12.8	10
3-Methylthiophene	ND		mg/kg	98.3	11.5	10
1-Octene	ND		mg/kg	246	15.1	10
Octane	1630		mg/kg	98.3	11.6	10
1,2-Dimethylcyclohexane (trans)	798		mg/kg	98.3	14.4	10
1,2-Dibromoethane	ND		mg/kg	98.3	15.7	10



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
cis-2-Octene	ND		mg/kg	98.3	11.2	10
Isopropylcyclopentane	62.7	J	mg/kg	98.3	14.4	10
1,2-Dimethylcyclohexane (cis)	340		mg/kg	98.3	28.6	10
2,5-Dimethylheptane	459		mg/kg	98.3	16.5	10
3,5-Dimethylheptane	110		mg/kg	98.3	13.9	10
3,3-Dimethylheptane	49.1	J	mg/kg	98.3	11.9	10
1,1,4-Trimethylcyclohexane	ND		mg/kg	98.3	9.78	10
2,3-Dimethylheptane	547		mg/kg	98.3	11.2	10
3,4-Dimethylheptane	237		mg/kg	98.3	16.7	10
4-Methyloctane	520		mg/kg	98.3	16.4	10
2-Methyloctane	777		mg/kg	98.3	25.2	10
Ethylbenzene	1040		mg/kg	98.3	10.6	10
2-Ethylthiophene	ND		mg/kg	98.3	8.65	10
3-Methyloctane	857		mg/kg	98.3	11.0	10
3,3-Diethylpentane	ND		mg/kg	98.3	11.4	10
p/m-Xylene	4040		mg/kg	197	18.7	10
1-Nonene	ND		mg/kg	246	13.3	10
trans-3-Nonene	ND		mg/kg	98.3	11.6	10
cis-3-Nonene	ND		mg/kg	98.3	18.4	10
Nonane (C9)	970		mg/kg	98.3	15.3	10
Styrene	ND		mg/kg	98.3	9.93	10
o-Xylene	182		mg/kg	98.3	10.3	10
Xylene (Total) ¹	4220		mg/kg	98.3	10.3	10
2-Nonene	ND		mg/kg	246	12.5	10
Isopropylcyclohexane	ND		mg/kg	98.3	10.4	10
Isopropylbenzene	214		mg/kg	98.3	9.19	10
3,3-Dimethyloctane	87.5	J	mg/kg	98.3	9.93	10
n-Propylbenzene	558		mg/kg	98.3	8.70	10
2-Methylnonane	825		mg/kg	98.3	13.9	10
3-Methylnonane	758		mg/kg	98.3	13.7	10
1-Methyl-3-Ethylbenzene	1870		mg/kg	98.3	15.5	10
1-Methyl-4-Ethylbenzene	920		mg/kg	98.3	13.9	10
1,3,5-Trimethylbenzene	1360		mg/kg	98.3	11.3	10
1-Decene	ND		mg/kg	98.3	12.8	10
Isobutylcyclohexane	ND		mg/kg	98.3	8.01	10
1-Methyl-2-Ethylbenzene	803		mg/kg	98.3	8.36	10
Decane (C10)	852		mg/kg	98.3	13.3	10



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
tert-Butylbenzene	12.8	J	mg/kg	98.3	10.4	10
1,2,4-Trimethylbenzene	4120		mg/kg	98.3	10.2	10
Isobutylbenzene	107		mg/kg	98.3	13.3	10
sec-Butylbenzene	300		mg/kg	98.3	12.7	10
1-Methyl-3-Isopropylbenzene	350		mg/kg	98.3	12.7	10
1-Methyl-4-Isopropylbenzene	239		mg/kg	98.3	10.4	10
1,2,3-Trimethylbenzene	1340		mg/kg	98.3	11.0	10
1-Methyl-2-Isopropylbenzene	47.5	J	mg/kg	98.3	10.7	10
Indane	574		mg/kg	98.3	6.05	10
1,3-Diethylbenzene	422		mg/kg	98.3	12.2	10
1-Methyl-3-N-Propylbenzene	1010		mg/kg	98.3	9.93	10
Indene	62.7	J	mg/kg	98.3	5.70	10
1-Methyl-4-N-Propylbenzene	517		mg/kg	98.3	12.3	10
n-Butylbenzene	392		mg/kg	98.3	9.68	10
1,2-Dimethyl-4-Ethylbenzene	1090		mg/kg	98.3	12.0	10
1,2-Diethylbenzene	143		mg/kg	98.3	14.6	10
1-Methyl-2-N-Propylbenzene	580		mg/kg	98.3	12.2	10
1,4-Dimethyl-2-Ethylbenzene	843		mg/kg	98.3	9.19	10
Undecane	731		mg/kg	98.3	10.9	10
1,3-Dimethyl-4-Ethylbenzene	889		mg/kg	98.3	9.54	10
1,3-Dimethyl-5-Ethylbenzene	1270		mg/kg	98.3	11.6	10
1,3-Dimethyl-2-Ethylbenzene	181		mg/kg	98.3	7.32	10
1,2-Dimethyl-3-Ethylbenzene	417		mg/kg	98.3	6.24	10
1,2,4,5-Tetramethylbenzene	808		mg/kg	98.3	7.62	10
1,2,3,5-Tetramethylbenzene	1350		mg/kg	98.3	7.47	10
N-Pentylbenzene	202		mg/kg	98.3	12.2	10
1,2,3,4-Tetramethylbenzene	736		mg/kg	98.3	10.5	10
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	98.3	14.0	10
Dodecane (C12)	1180		mg/kg	246	32.3	10
1,3,5-Triethylbenzene	ND		mg/kg	98.3	18.7	10
Naphthalene	1890		mg/kg	98.3	41.0	10
Benzothiophene	ND		mg/kg	98.3	52.0	10
1,2,4-Triethylbenzene	ND		mg/kg	98.3	16.7	10
Hexylbenzene	349		mg/kg	98.3	18.9	10
MMT	ND		mg/kg	246	63.2	10
Tridecane	1090		mg/kg	246	68.5	10
2-Methylnaphthalene	9240		mg/kg	246	65.0	10



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1-Methylnaphthalene	5680		mg/kg	246	72.2	10
Tetradecane (C14)	351		mg/kg	246	30.1	10
Pentadecane	351		mg/kg	246	54.8	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	128		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	92		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02 D
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8260D
 Analytical Date: 10/14/22 23:48
 Analyst: RAY
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	99.0	14.7	10
Isopentane	2160		mg/kg	99.0	18.1	10
1-Pentene	ND		mg/kg	99.0	18.1	10
2-Methyl-1-Butene	236		mg/kg	99.0	15.4	10
Pentane	1300		mg/kg	99.0	30.9	10
trans-2-Pentene	114		mg/kg	99.0	13.4	10
Isoprene	ND		mg/kg	99.0	17.7	10
cis-2-Pentene	72.0	J	mg/kg	99.0	15.9	10
Tertiary Butanol	ND		mg/kg	1240	160.	10
2,2-Dimethylbutane	139		mg/kg	99.0	30.5	10
4-Methyl-1-pentene	25.9	J	mg/kg	99.0	15.4	10
Cyclopentane	201		mg/kg	99.0	25.7	10
2,3-Dimethylbutane	429		mg/kg	99.0	40.9	10
2-Methylpentane	1660		mg/kg	99.0	26.8	10
Methyl tert butyl ether	ND		mg/kg	99.0	20.4	10
3-Methylpentane	1400		mg/kg	99.0	15.7	10
1-Hexene	22.8	J	mg/kg	99.0	13.9	10
n-Hexane	1470		mg/kg	99.0	16.3	10
Isopropyl Ether	ND		mg/kg	99.0	12.0	10
trans-2-Hexene	41.9	J	mg/kg	99.0	12.9	10
2-Methyl-2-pentene	240		mg/kg	99.0	15.1	10
cis-2-Hexene	30.0	J	mg/kg	99.0	13.4	10
Ethyl-Tert-Butyl-Ether	ND		mg/kg	99.0	15.0	10
2,2-Dimethylpentane	115		mg/kg	99.0	13.3	10
Methylcyclopentane	1960		mg/kg	99.0	13.3	10
2,4-Dimethylpentane	273		mg/kg	99.0	12.2	10
2,2,3-Trimethylbutane	37.6	J	mg/kg	99.0	13.4	10
1,2-Dichloroethane	ND		mg/kg	99.0	14.6	10



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-02 D

Date Collected: 10/12/22 10:20

Client ID: S240-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	106		mg/kg	99.0	18.4	10
Cyclohexane	1280		mg/kg	99.0	12.2	10
2-Methylhexane	1290		mg/kg	99.0	15.6	10
Benzene	339		mg/kg	99.0	15.1	10
2,3-Dimethylpentane	668		mg/kg	99.0	13.1	10
Thiophene	ND		mg/kg	99.0	14.0	10
1,1-Dimethylcyclopentane	ND		mg/kg	99.0	11.9	10
3-Methylhexane	1590		mg/kg	99.0	15.8	10
Tertiary-Amyl Methyl Ether	ND		mg/kg	99.0	12.2	10
3-Ethylpentane	183		mg/kg	99.0	14.3	10
1-Heptene/1,2-DMCP (trans)	1610		mg/kg	198	29.0	10
Isooctane	346		mg/kg	99.0	10.8	10
trans-3-Heptene	ND		mg/kg	99.0	15.4	10
Heptane	2160		mg/kg	99.0	17.2	10
trans-2-Heptene	ND		mg/kg	99.0	12.7	10
cis-2-Heptene	ND		mg/kg	99.0	19.2	10
2,2-Dimethylhexane	ND		mg/kg	99.0	14.4	10
Methylcyclohexane	4380		mg/kg	99.0	13.4	10
2,5-Dimethylhexane	308		mg/kg	99.0	17.2	10
2,4-Dimethylhexane	400		mg/kg	99.0	12.0	10
Ethylcyclopentane	392		mg/kg	99.0	13.1	10
2,2,3-Trimethylpentane	50.1	J	mg/kg	99.0	17.2	10
2,3,4-Trimethylpentane	283		mg/kg	99.0	12.9	10
2,3,3-Trimethylpentane	299		mg/kg	99.0	19.6	10
2,3-Dimethylhexane	307		mg/kg	99.0	24.0	10
2-Methylheptane	1540		mg/kg	99.0	16.7	10
4-Methylheptane	529		mg/kg	99.0	17.0	10
3-Methylheptane	1140		mg/kg	99.0	14.1	10
3-Ethylhexane	274		mg/kg	99.0	17.7	10
Toluene	129		mg/kg	99.0	13.4	10
2-Methylthiophene	ND		mg/kg	99.0	8.42	10
1,4-Dimethylcyclohexane (trans)	641		mg/kg	99.0	12.9	10
3-Methylthiophene	ND		mg/kg	99.0	11.6	10
1-Octene	ND		mg/kg	248	15.2	10
Octane	2110		mg/kg	99.0	11.6	10
1,2-Dimethylcyclohexane (trans)	985		mg/kg	99.0	14.6	10
1,2-Dibromoethane	ND		mg/kg	99.0	15.8	10



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-02 D

Date Collected: 10/12/22 10:20

Client ID: S240-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
cis-2-Octene	ND		mg/kg	99.0	11.3	10
Isopropylcyclopentane	ND		mg/kg	99.0	14.5	10
1,2-Dimethylcyclohexane (cis)	359		mg/kg	99.0	28.8	10
2,5-Dimethylheptane	590		mg/kg	99.0	16.6	10
3,5-Dimethylheptane	144		mg/kg	99.0	14.0	10
3,3-Dimethylheptane	73.0	J	mg/kg	99.0	12.0	10
1,1,4-Trimethylcyclohexane	ND		mg/kg	99.0	9.85	10
2,3-Dimethylheptane	578		mg/kg	99.0	11.3	10
3,4-Dimethylheptane	329		mg/kg	99.0	16.8	10
4-Methyloctane	652		mg/kg	99.0	16.5	10
2-Methyloctane	924		mg/kg	99.0	25.3	10
Ethylbenzene	766		mg/kg	99.0	10.7	10
2-Ethylthiophene	ND		mg/kg	99.0	8.71	10
3-Methyloctane	1020		mg/kg	99.0	11.1	10
3,3-Diethylpentane	ND		mg/kg	99.0	11.5	10
p/m-Xylene	5650		mg/kg	198	18.9	10
1-Nonene	ND		mg/kg	248	13.4	10
trans-3-Nonene	ND		mg/kg	99.0	11.7	10
cis-3-Nonene	ND		mg/kg	99.0	18.5	10
Nonane (C9)	2470		mg/kg	99.0	15.4	10
Styrene	ND		mg/kg	99.0	10.0	10
o-Xylene	1280		mg/kg	99.0	10.3	10
Xylene (Total) ¹	6930		mg/kg	99.0	10.3	10
2-Nonene	ND		mg/kg	248	12.6	10
Isopropylcyclohexane	ND		mg/kg	99.0	10.5	10
Isopropylbenzene	115		mg/kg	99.0	9.26	10
3,3-Dimethyloctane	103		mg/kg	99.0	10.0	10
n-Propylbenzene	356		mg/kg	99.0	8.76	10
2-Methylnonane	881		mg/kg	99.0	14.0	10
3-Methylnonane	864		mg/kg	99.0	13.8	10
1-Methyl-3-Ethylbenzene	2230		mg/kg	99.0	15.6	10
1-Methyl-4-Ethylbenzene	1190		mg/kg	99.0	14.0	10
1,3,5-Trimethylbenzene	2010		mg/kg	99.0	11.4	10
1-Decene	ND		mg/kg	99.0	12.9	10
Isobutylcyclohexane	ND		mg/kg	99.0	8.07	10
1-Methyl-2-Ethylbenzene	1010		mg/kg	99.0	8.42	10
Decane (C10)	3600		mg/kg	99.0	13.4	10



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02 D

Date Collected: 10/12/22 10:20

Client ID: S240-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
tert-Butylbenzene	20.8	J	mg/kg	99.0	10.4	10
1,2,4-Trimethylbenzene	5620		mg/kg	99.0	10.2	10
Isobutylbenzene	88.8	J	mg/kg	99.0	13.4	10
sec-Butylbenzene	163		mg/kg	99.0	12.8	10
1-Methyl-3-Isopropylbenzene	326		mg/kg	99.0	12.8	10
1-Methyl-4-Isopropylbenzene	187		mg/kg	99.0	10.5	10
1,2,3-Trimethylbenzene	1740		mg/kg	99.0	11.0	10
1-Methyl-2-Isopropylbenzene	49.8	J	mg/kg	99.0	10.7	10
Indane	745		mg/kg	99.0	6.09	10
1,3-Diethylbenzene	485		mg/kg	99.0	12.3	10
1-Methyl-3-N-Propylbenzene	1080		mg/kg	99.0	10.0	10
Indene	88.0	J	mg/kg	99.0	5.74	10
1-Methyl-4-N-Propylbenzene	518		mg/kg	99.0	12.4	10
n-Butylbenzene	305		mg/kg	99.0	9.75	10
1,2-Dimethyl-4-Ethylbenzene	1430		mg/kg	99.0	12.1	10
1,2-Diethylbenzene	125		mg/kg	99.0	14.6	10
1-Methyl-2-N-Propylbenzene	534		mg/kg	99.0	12.3	10
1,4-Dimethyl-2-Ethylbenzene	1000		mg/kg	99.0	9.26	10
Undecane	3460		mg/kg	99.0	11.0	10
1,3-Dimethyl-4-Ethylbenzene	993		mg/kg	99.0	9.60	10
1,3-Dimethyl-5-Ethylbenzene	1660		mg/kg	99.0	11.7	10
1,3-Dimethyl-2-Ethylbenzene	187		mg/kg	99.0	7.38	10
1,2-Dimethyl-3-Ethylbenzene	459		mg/kg	99.0	6.29	10
1,2,4,5-Tetramethylbenzene	1130		mg/kg	99.0	7.67	10
1,2,3,5-Tetramethylbenzene	1750		mg/kg	99.0	7.52	10
N-Pentylbenzene	164		mg/kg	99.0	12.3	10
1,2,3,4-Tetramethylbenzene	937		mg/kg	99.0	10.6	10
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	99.0	14.1	10
Dodecane (C12)	3280		mg/kg	248	32.5	10
1,3,5-Triethylbenzene	ND		mg/kg	99.0	18.8	10
Naphthalene	1750		mg/kg	99.0	41.3	10
Benzothiophene	ND		mg/kg	99.0	52.3	10
1,2,4-Triethylbenzene	136		mg/kg	99.0	16.8	10
Hexylbenzene	342		mg/kg	99.0	19.0	10
MMT	ND		mg/kg	248	63.7	10
Tridecane	3140		mg/kg	248	69.0	10
2-Methylnaphthalene	9300		mg/kg	248	65.4	10



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02 D
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1-Methylnaphthalene	5580		mg/kg	248	72.7	10
Tetradecane (C14)	2640		mg/kg	248	30.3	10
Pentadecane	1400		mg/kg	248	55.2	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	128		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-03
 Client ID: S233-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 14:00
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/14/22 13:55
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/14/22 11:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-03 D
 Client ID: S233-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 14:00
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/18/22 00:53
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

Methyl tert butyl ether	ND		ug/l	100	17.	100
Benzene	9700		ug/l	50	16.	100
1,2-Dichloroethane	ND		ug/l	50	13.	100
Toluene	460		ug/l	75	20.	100
Ethylbenzene	1400		ug/l	50	17.	100
p/m-Xylene	10000		ug/l	100	33.	100
o-Xylene	1400		ug/l	100	39.	100
Xylenes, Total	11000		ug/l	100	33.	100
Isopropylbenzene	ND		ug/l	50	19.	100
1,3,5-Trimethylbenzene	440		ug/l	250	22.	100
1,2,4-Trimethylbenzene	1500		ug/l	250	19.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D2
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8260D
 Analytical Date: 10/15/22 06:56
 Analyst: RAY
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylpentane	9870		mg/kg	1940	525.	200
3-Methylpentane	7840		mg/kg	1940	307.	200
n-Hexane	10500		mg/kg	1940	319.	200
Methylcyclopentane	10000		mg/kg	1940	260.	200
2-Methylhexane	10300		mg/kg	1940	305.	200
3-Methylhexane	11600		mg/kg	1940	310.	200
Heptane	14000		mg/kg	1940	337.	200
Methylcyclohexane	11900		mg/kg	1940	262.	200
Octane	8930		mg/kg	1940	228.	200
p/m-Xylene	38200		mg/kg	3880	369.	200
Xylene (Total) ¹	38200		mg/kg	96.9	10.1	200
1-Methyl-3-Ethylbenzene	11600		mg/kg	1940	306.	200
1,2,4-Trimethylbenzene	23000		mg/kg	1940	200.	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	129		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8260D
 Analytical Date: 10/15/22 01:00
 Analyst: RAY
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	96.9	14.4	10
Isopentane	6630		mg/kg	96.9	17.7	10
1-Pentene	ND		mg/kg	96.9	17.7	10
2-Methyl-1-Butene	745		mg/kg	96.9	15.1	10
Pentane	6000		mg/kg	96.9	30.2	10
trans-2-Pentene	210		mg/kg	96.9	13.1	10
Isoprene	ND		mg/kg	96.9	17.3	10
cis-2-Pentene	92.4	J	mg/kg	96.9	15.6	10
Tertiary Butanol	ND		mg/kg	1210	157.	10
2,2-Dimethylbutane	702		mg/kg	96.9	29.9	10
4-Methyl-1-pentene	122		mg/kg	96.9	15.1	10
Cyclopentane	1280		mg/kg	96.9	25.1	10
2,3-Dimethylbutane	2880		mg/kg	96.9	40.0	10
2-Methylpentane	14400	E	mg/kg	96.9	26.2	10
Methyl tert butyl ether	ND		mg/kg	96.9	20.0	10
3-Methylpentane	11300	E	mg/kg	96.9	15.4	10
1-Hexene	125		mg/kg	96.9	13.6	10
n-Hexane	15000	E	mg/kg	96.9	15.9	10
Isopropyl Ether	ND		mg/kg	96.9	11.7	10
trans-2-Hexene	89.8	J	mg/kg	96.9	12.6	10
2-Methyl-2-pentene	3150		mg/kg	96.9	14.8	10
cis-2-Hexene	162		mg/kg	96.9	13.1	10
Ethyl-Tert-Butyl-Ether	ND		mg/kg	96.9	14.7	10
2,2-Dimethylpentane	742		mg/kg	96.9	13.0	10
Methylcyclopentane	13100	E	mg/kg	96.9	13.0	10
2,4-Dimethylpentane	2130		mg/kg	96.9	12.0	10
2,2,3-Trimethylbutane	228		mg/kg	96.9	13.1	10
1,2-Dichloroethane	ND		mg/kg	96.9	14.3	10



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-04 D

Date Collected: 10/12/22 10:10

Client ID: S235-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	715		mg/kg	96.9	18.0	10
Cyclohexane	5260		mg/kg	96.9	12.0	10
2-Methylhexane	13400	E	mg/kg	96.9	15.3	10
Benzene	3340		mg/kg	96.9	14.8	10
2,3-Dimethylpentane	5340		mg/kg	96.9	12.8	10
Thiophene	ND		mg/kg	96.9	13.8	10
1,1-Dimethylcyclopentane	ND		mg/kg	96.9	11.6	10
3-Methylhexane	13900	E	mg/kg	96.9	15.5	10
Tertiary-Amyl Methyl Ether	ND		mg/kg	96.9	11.9	10
3-Ethylpentane	1270		mg/kg	96.9	14.0	10
1-Heptene/1,2-DMCP (trans)	6660		mg/kg	194	28.3	10
Isooctane	1420		mg/kg	96.9	10.6	10
trans-3-Heptene	ND		mg/kg	96.9	15.1	10
Heptane	16300	E	mg/kg	96.9	16.9	10
trans-2-Heptene	ND		mg/kg	96.9	12.4	10
cis-2-Heptene	ND		mg/kg	96.9	18.8	10
2,2-Dimethylhexane	ND		mg/kg	96.9	14.0	10
Methylcyclohexane	14400	E	mg/kg	96.9	13.1	10
2,5-Dimethylhexane	2160		mg/kg	96.9	16.9	10
2,4-Dimethylhexane	2400		mg/kg	96.9	11.8	10
Ethylcyclopentane	2290		mg/kg	96.9	12.8	10
2,2,3-Trimethylpentane	176		mg/kg	96.9	16.8	10
2,3,4-Trimethylpentane	1080		mg/kg	96.9	12.6	10
2,3,3-Trimethylpentane	1220		mg/kg	96.9	19.2	10
2,3-Dimethylhexane	1640		mg/kg	96.9	23.5	10
2-Methylheptane	9300		mg/kg	96.9	16.4	10
4-Methylheptane	3990		mg/kg	96.9	16.7	10
3-Methylheptane	7320		mg/kg	96.9	13.8	10
3-Ethylhexane	2280		mg/kg	96.9	17.3	10
Toluene	333		mg/kg	96.9	13.1	10
2-Methylthiophene	ND		mg/kg	96.9	8.24	10
1,4-Dimethylcyclohexane (trans)	2400		mg/kg	96.9	12.6	10
3-Methylthiophene	ND		mg/kg	96.9	11.3	10
1-Octene	ND		mg/kg	242	14.9	10
Octane	10800	E	mg/kg	96.9	11.4	10
1,2-Dimethylcyclohexane (trans)	1340		mg/kg	96.9	14.2	10
1,2-Dibromoethane	ND		mg/kg	96.9	15.5	10



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-04 D

Date Collected: 10/12/22 10:10

Client ID: S235-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
cis-2-Octene	ND		mg/kg	96.9	11.1	10
Isopropylcyclopentane	356		mg/kg	96.9	14.2	10
1,2-Dimethylcyclohexane (cis)	2030		mg/kg	96.9	28.1	10
2,5-Dimethylheptane	3150		mg/kg	96.9	16.2	10
3,5-Dimethylheptane	716		mg/kg	96.9	13.7	10
3,3-Dimethylheptane	277		mg/kg	96.9	11.7	10
1,1,4-Trimethylcyclohexane	ND		mg/kg	96.9	9.64	10
2,3-Dimethylheptane	1940		mg/kg	96.9	11.0	10
3,4-Dimethylheptane	1360		mg/kg	96.9	16.5	10
4-Methyloctane	2960		mg/kg	96.9	16.2	10
2-Methyloctane	4670		mg/kg	96.9	24.8	10
Ethylbenzene	8480		mg/kg	96.9	10.5	10
2-Ethylthiophene	ND		mg/kg	96.9	8.53	10
3-Methyloctane	4560		mg/kg	96.9	10.8	10
3,3-Diethylpentane	ND		mg/kg	96.9	11.3	10
p/m-Xylene	42900	E	mg/kg	194	18.4	10
1-Nonene	ND		mg/kg	242	13.1	10
trans-3-Nonene	ND		mg/kg	96.9	11.5	10
cis-3-Nonene	ND		mg/kg	96.9	18.1	10
Nonane (C9)	5680		mg/kg	96.9	15.1	10
Styrene	ND		mg/kg	96.9	9.79	10
o-Xylene	1890		mg/kg	96.9	10.1	10
2-Nonene	ND		mg/kg	242	12.3	10
Isopropylcyclohexane	530		mg/kg	96.9	10.3	10
Isopropylbenzene	547		mg/kg	96.9	9.06	10
3,3-Dimethyloctane	207		mg/kg	96.9	9.79	10
n-Propylbenzene	3040		mg/kg	96.9	8.58	10
2-Methylnonane	2030		mg/kg	96.9	13.7	10
3-Methylnonane	2040		mg/kg	96.9	13.5	10
1-Methyl-3-Ethylbenzene	13400	E	mg/kg	96.9	15.3	10
1-Methyl-4-Ethylbenzene	6700		mg/kg	96.9	13.7	10
1,3,5-Trimethylbenzene	9360		mg/kg	96.9	11.1	10
1-Decene	ND		mg/kg	96.9	12.6	10
Isobutylcyclohexane	ND		mg/kg	96.9	7.90	10
1-Methyl-2-Ethylbenzene	3910		mg/kg	96.9	8.24	10
Decane (C10)	3000		mg/kg	96.9	13.1	10
tert-Butylbenzene	30.5	J	mg/kg	96.9	10.2	10



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D

Date Collected: 10/12/22 10:10

Client ID: S235-NAPL-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2,4-Trimethylbenzene	25000	E	mg/kg	96.9	10.0	10
Isobutylbenzene	308		mg/kg	96.9	13.1	10
sec-Butylbenzene	324		mg/kg	96.9	12.5	10
1-Methyl-3-Isopropylbenzene	544		mg/kg	96.9	12.5	10
1-Methyl-4-Isopropylbenzene	258		mg/kg	96.9	10.3	10
1,2,3-Trimethylbenzene	5400		mg/kg	96.9	10.8	10
1-Methyl-2-Isopropylbenzene	57.6	J	mg/kg	96.9	10.5	10
Indane	2770		mg/kg	96.9	5.96	10
1,3-Diethylbenzene	1540		mg/kg	96.9	12.1	10
1-Methyl-3-N-Propylbenzene	3550		mg/kg	96.9	9.79	10
Indene	246		mg/kg	96.9	5.62	10
1-Methyl-4-N-Propylbenzene	1860		mg/kg	96.9	12.1	10
n-Butylbenzene	1110		mg/kg	96.9	9.54	10
1,2-Dimethyl-4-Ethylbenzene	4810		mg/kg	96.9	11.9	10
1,2-Diethylbenzene	306		mg/kg	96.9	14.3	10
1-Methyl-2-N-Propylbenzene	1240		mg/kg	96.9	12.1	10
1,4-Dimethyl-2-Ethylbenzene	2880		mg/kg	96.9	9.06	10
Undecane	2000		mg/kg	96.9	10.8	10
1,3-Dimethyl-4-Ethylbenzene	2730		mg/kg	96.9	9.40	10
1,3-Dimethyl-5-Ethylbenzene	4740		mg/kg	96.9	11.4	10
1,3-Dimethyl-2-Ethylbenzene	300		mg/kg	96.9	7.22	10
1,2-Dimethyl-3-Ethylbenzene	986		mg/kg	96.9	6.15	10
1,2,4,5-Tetramethylbenzene	2840		mg/kg	96.9	7.51	10
1,2,3,5-Tetramethylbenzene	4020		mg/kg	96.9	7.36	10
N-Pentylbenzene	325		mg/kg	96.9	12.1	10
1,2,3,4-Tetramethylbenzene	1100		mg/kg	96.9	10.4	10
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	96.9	13.8	10
Dodecane (C12)	1680		mg/kg	242	31.8	10
1,3,5-Triethylbenzene	ND		mg/kg	96.9	18.4	10
Naphthalene	3180		mg/kg	96.9	40.4	10
Benzothiophene	257		mg/kg	96.9	51.2	10
1,2,4-Triethylbenzene	ND		mg/kg	96.9	16.5	10
Hexylbenzene	307		mg/kg	96.9	18.6	10
MMT	ND		mg/kg	242	62.3	10
Tridecane	926		mg/kg	242	67.5	10
2-Methylnaphthalene	5040		mg/kg	242	64.0	10
1-Methylnaphthalene	2550		mg/kg	242	71.1	10



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Tetradecane (C14)	361		mg/kg	242	29.6	10
Pentadecane	381		mg/kg	242	54.0	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	129		70-130
Toluene-d8	126		70-130
4-Bromofluorobenzene	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-05
 Client ID: TG05MW01-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 12:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/14/22 14:06
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/14/22 11:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-05 D
 Client ID: TG05MW01-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 12:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/18/22 01:13
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	660		ug/l	40	6.6	40
Benzene	690		ug/l	20	6.4	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
Toluene	7000		ug/l	30	8.1	40
Ethylbenzene	1300		ug/l	20	6.7	40
p/m-Xylene	4800		ug/l	40	13.	40
o-Xylene	1700		ug/l	40	16.	40
Xylenes, Total	6500		ug/l	40	13.	40
Isopropylbenzene	60		ug/l	20	7.5	40
1,3,5-Trimethylbenzene	170		ug/l	100	8.7	40
1,2,4-Trimethylbenzene	580		ug/l	100	7.6	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					
3-Methyl-1-butene	ND		mg/kg	10.0	1.48
Isopentane	ND		mg/kg	10.0	1.83
1-Pentene	ND		mg/kg	10.0	1.82
2-Methyl-1-Butene	ND		mg/kg	10.0	1.56
Pentane	ND		mg/kg	10.0	3.12
trans-2-Pentene	ND		mg/kg	10.0	1.35
Isoprene	ND		mg/kg	10.0	1.78
cis-2-Pentene	ND		mg/kg	10.0	1.61
Tertiary Butanol	ND		mg/kg	125	16.2
2,2-Dimethylbutane	ND		mg/kg	10.0	3.08
4-Methyl-1-pentene	ND		mg/kg	10.0	1.56
Cyclopentane	ND		mg/kg	10.0	2.60
2,3-Dimethylbutane	ND		mg/kg	10.0	4.13
2-Methylpentane	ND		mg/kg	10.0	2.71
Methyl tert butyl ether	ND		mg/kg	10.0	2.06
3-Methylpentane	ND		mg/kg	10.0	1.58
1-Hexene	ND		mg/kg	10.0	1.40
n-Hexane	ND		mg/kg	10.0	1.64
Isopropyl Ether	ND		mg/kg	10.0	1.21
trans-2-Hexene	ND		mg/kg	10.0	1.30
2-Methyl-2-pentene	ND		mg/kg	10.0	1.53
cis-2-Hexene	ND		mg/kg	10.0	1.36
Ethyl-Tert-Butyl-Ether	ND		mg/kg	10.0	1.52
2,2-Dimethylpentane	ND		mg/kg	10.0	1.34
Methylcyclopentane	ND		mg/kg	10.0	1.34
2,4-Dimethylpentane	ND		mg/kg	10.0	1.24
2,2,3-Trimethylbutane	ND		mg/kg	10.0	1.35
1,2-Dichloroethane	ND		mg/kg	10.0	1.48
3,3-Dimethylpentane	ND		mg/kg	10.0	1.86



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					
Cyclohexane	ND		mg/kg	10.0	1.24
2-Methylhexane	ND		mg/kg	10.0	1.58
Benzene	1.92	J	mg/kg	10.0	1.52
2,3-Dimethylpentane	ND		mg/kg	10.0	1.32
Thiophene	ND		mg/kg	10.0	1.42
1,1-Dimethylcyclopentane	ND		mg/kg	10.0	1.20
3-Methylhexane	ND		mg/kg	10.0	1.60
Tertiary-Amyl Methyl Ether	ND		mg/kg	10.0	1.23
3-Ethylpentane	ND		mg/kg	10.0	1.44
1-Heptene/1,2-DMCP (trans)	ND		mg/kg	20.0	2.92
Isooctane	ND		mg/kg	10.0	1.09
trans-3-Heptene	ND		mg/kg	10.0	1.56
Heptane	ND		mg/kg	10.0	1.74
trans-2-Heptene	ND		mg/kg	10.0	1.28
cis-2-Heptene	ND		mg/kg	10.0	1.94
2,2-Dimethylhexane	ND		mg/kg	10.0	1.45
Methylcyclohexane	ND		mg/kg	10.0	1.35
2,5-Dimethylhexane	ND		mg/kg	10.0	1.74
2,4-Dimethylhexane	ND		mg/kg	10.0	1.22
Ethylcyclopentane	ND		mg/kg	10.0	1.32
2,2,3-Trimethylpentane	ND		mg/kg	10.0	1.74
2,3,4-Trimethylpentane	ND		mg/kg	10.0	1.30
2,3,3-Trimethylpentane	ND		mg/kg	10.0	1.98
2,3-Dimethylhexane	ND		mg/kg	10.0	2.42
2-Methylheptane	ND		mg/kg	10.0	1.69
4-Methylheptane	ND		mg/kg	10.0	1.72
3-Methylheptane	ND		mg/kg	10.0	1.42
3-Ethylhexane	ND		mg/kg	10.0	1.79
Toluene	ND		mg/kg	10.0	1.36



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					
2-Methylthiophene	ND		mg/kg	10.0	0.850
1,4-Dimethylcyclohexane (trans)	ND		mg/kg	10.0	1.30
3-Methylthiophene	ND		mg/kg	10.0	1.17
1-Octene	ND		mg/kg	25.0	1.54
Octane	ND		mg/kg	10.0	1.18
1,2-Dimethylcyclohexane (trans)	ND		mg/kg	10.0	1.47
1,2-Dibromoethane	ND		mg/kg	10.0	1.60
cis-2-Octene	ND		mg/kg	10.0	1.14
Isopropylcyclopentane	ND		mg/kg	10.0	1.46
1,2-Dimethylcyclohexane (cis)	ND		mg/kg	10.0	2.90
2,5-Dimethylheptane	ND		mg/kg	10.0	1.68
3,5-Dimethylheptane	ND		mg/kg	10.0	1.41
3,3-Dimethylheptane	ND		mg/kg	10.0	1.21
1,1,4-Trimethylcyclohexane	ND		mg/kg	10.0	0.995
2,3-Dimethylheptane	ND		mg/kg	10.0	1.14
3,4-Dimethylheptane	ND		mg/kg	10.0	1.70
4-Methyloctane	ND		mg/kg	10.0	1.67
2-Methyloctane	ND		mg/kg	10.0	2.56
Ethylbenzene	ND		mg/kg	10.0	1.08
2-Ethylthiophene	ND		mg/kg	10.0	0.880
3-Methyloctane	ND		mg/kg	10.0	1.12
3,3-Diethylpentane	ND		mg/kg	10.0	1.16
p/m-Xylene	ND		mg/kg	20.0	1.90
1-Nonene	ND		mg/kg	25.0	1.35
trans-3-Nonene	ND		mg/kg	10.0	1.18
cis-3-Nonene	ND		mg/kg	10.0	1.87
Nonane (C9)	ND		mg/kg	10.0	1.56
Styrene	ND		mg/kg	10.0	1.01
o-Xylene	ND		mg/kg	10.0	1.04



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					
Xylene (Total) ¹	ND		mg/kg	10.0	1.04
2-Nonene	ND		mg/kg	25.0	1.27
Isopropylcyclohexane	ND		mg/kg	10.0	1.06
Isopropylbenzene	ND		mg/kg	10.0	0.935
3,3-Dimethyloctane	ND		mg/kg	10.0	1.01
n-Propylbenzene	ND		mg/kg	10.0	0.885
2-Methylnonane	ND		mg/kg	10.0	1.42
3-Methylnonane	ND		mg/kg	10.0	1.40
1-Methyl-3-Ethylbenzene	ND		mg/kg	10.0	1.58
1-Methyl-4-Ethylbenzene	ND		mg/kg	10.0	1.41
1,3,5-Trimethylbenzene	ND		mg/kg	10.0	1.15
1-Decene	ND		mg/kg	10.0	1.30
Isobutylcyclohexane	ND		mg/kg	10.0	0.815
1-Methyl-2-Ethylbenzene	ND		mg/kg	10.0	0.850
Decane (C10)	1.76	J	mg/kg	10.0	1.36
tert-Butylbenzene	ND		mg/kg	10.0	1.06
1,2,4-Trimethylbenzene	ND		mg/kg	10.0	1.04
Isobutylbenzene	ND		mg/kg	10.0	1.35
sec-Butylbenzene	ND		mg/kg	10.0	1.30
1-Methyl-3-Isopropylbenzene	ND		mg/kg	10.0	1.29
1-Methyl-4-Isopropylbenzene	ND		mg/kg	10.0	1.06
1,2,3-Trimethylbenzene	ND		mg/kg	10.0	1.12
1-Methyl-2-Isopropylbenzene	ND		mg/kg	10.0	1.08
Indane	ND		mg/kg	10.0	0.615
1,3-Diethylbenzene	ND		mg/kg	10.0	1.24
1-Methyl-3-N-Propylbenzene	ND		mg/kg	10.0	1.01
Indene	ND		mg/kg	10.0	0.580
1-Methyl-4-N-Propylbenzene	ND		mg/kg	10.0	1.25
n-Butylbenzene	ND		mg/kg	10.0	0.985



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					
1,2-Dimethyl-4-Ethylbenzene	ND		mg/kg	10.0	1.22
1,2-Diethylbenzene	ND		mg/kg	10.0	1.48
1-Methyl-2-N-Propylbenzene	ND		mg/kg	10.0	1.24
1,4-Dimethyl-2-Ethylbenzene	ND		mg/kg	10.0	0.935
Undecane	ND		mg/kg	10.0	1.11
1,3-Dimethyl-4-Ethylbenzene	ND		mg/kg	10.0	0.970
1,3-Dimethyl-5-Ethylbenzene	ND		mg/kg	10.0	1.18
1,3-Dimethyl-2-Ethylbenzene	ND		mg/kg	10.0	0.745
1,2-Dimethyl-3-Ethylbenzene	ND		mg/kg	10.0	0.635
1,2,4,5-Tetramethylbenzene	ND		mg/kg	10.0	0.775
1,2,3,5-Tetramethylbenzene	ND		mg/kg	10.0	0.760
N-Pentylbenzene	ND		mg/kg	10.0	1.24
1,2,3,4-Tetramethylbenzene	ND		mg/kg	10.0	1.07
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	10.0	1.42
Dodecane (C12)	ND		mg/kg	25.0	3.28
1,3,5-Triethylbenzene	ND		mg/kg	10.0	1.90
Naphthalene	ND		mg/kg	10.0	4.18
Benzothiophene	ND		mg/kg	10.0	5.28
1,2,4-Triethylbenzene	ND		mg/kg	10.0	1.70
Hexylbenzene	ND		mg/kg	10.0	1.92
MMT	ND		mg/kg	25.0	6.43
Tridecane	ND		mg/kg	25.0	6.96
2-Methylnaphthalene	ND		mg/kg	25.0	6.61
1-Methylnaphthalene	ND		mg/kg	25.0	7.34
Tetradecane (C14)	ND		mg/kg	25.0	3.06
Pentadecane	ND		mg/kg	25.0	5.58



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 10/12/22 17:33
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-02,04 Batch: WG1698808-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	121		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/14/22 12:18
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/14/22 11:10

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 03,05 Batch: WG1699502-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/17/22 18:24
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03,05 Batch: WG1701006-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	110		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1698808-3 WG1698808-4								
1-Pentene	108		109		50-130	1		30
Pentane	91		93		50-130	2		30
Tertiary Butanol	100		99		50-130	1		30
Cyclopentane	93		93		50-130	0		30
2-Methylpentane	91		92		50-130	1		30
Methyl tert butyl ether	90		91		50-130	1		30
3-Methylpentane	97		96		50-130	1		30
1-Hexene	102		103		50-130	1		30
n-Hexane	93		92		50-130	1		30
Isopropyl Ether	92		92		50-130	0		30
Ethyl-Tert-Butyl-Ether	80		79		50-130	1		30
Methylcyclopentane	99		100		50-130	1		30
2,4-Dimethylpentane	95		97		50-130	2		30
Cyclohexane	100		100		50-130	0		30
2-Methylhexane	96		94		50-130	2		30
Benzene	95		95		50-130	0		30
2,3-Dimethylpentane	98		98		50-130	0		30
3-Methylhexane	89		89		50-130	0		30
Tertiary-Amyl Methyl Ether	88		88		50-130	0		30
Isooctane	101		99		50-130	2		30
Heptane	103		101		50-130	2		30
Methylcyclohexane	95		95		50-130	0		30
2-Methylheptane	97		94		50-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1698808-3 WG1698808-4								
3-Methylheptane	98		96		50-130	2		30
Toluene	96		97		50-130	1		30
Octane	100		98		50-130	2		30
Ethylbenzene	94		94		50-130	0		30
p/m-Xylene	98		98		50-130	0		30
Nonane (C9)	93		90		50-130	3		30
o-Xylene	100		99		50-130	1		30
Isopropylbenzene	98		97		50-130	1		30
n-Propylbenzene	98		97		50-130	1		30
1-Methyl-3-Ethylbenzene	96		95		50-130	1		30
1-Methyl-4-Ethylbenzene	100		100		50-130	0		30
1,3,5-Trimethylbenzene	99		98		50-130	1		30
1-Decene	83		80		50-130	4		30
1-Methyl-2-Ethylbenzene	101		100		50-130	1		30
Decane (C10)	105		101		50-130	4		30
1,2,4-Trimethylbenzene	95		95		50-130	0		30
sec-Butylbenzene	104		103		50-130	1		30
1-Methyl-4-N-Propylbenzene	99		97		50-130	2		30
n-Butylbenzene	100		98		50-130	2		30
1,2-Diethylbenzene	98		99		50-130	1		30
Undecane	102		96		50-130	6		30
N-Pentylbenzene	97		96		50-130	1		30
Dodecane (C12)	119		111		50-130	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2256785

Report Date: 11/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1698808-3 WG1698808-4

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
Dibromofluoromethane	112		112		70-130
Toluene-d8	106		108		70-130
4-Bromofluorobenzene	99		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2256785

Report Date: 11/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits	<i>Column</i>
Microextractables by GC - Westborough Lab Associated sample(s): 03,05 Batch: WG1699502-2									
1,2-Dibromoethane	100		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03,05 Batch: WG1701006-3 WG1701006-4								
Methyl tert butyl ether	97		100		63-130	3		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	97		97		64-130	0		20
1,2,4-Trimethylbenzene	95		96		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	98		98		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/05/22 01:48
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Benz(a)anthracene	1.82	J	mg/kg	2.63	0.536	1
Chrysene/Triphenylene	6.67		mg/kg	2.63	0.531	1
C1-Chrysenes	7.56		mg/kg	2.63	0.531	1
C2-Chrysenes BS	5.93		mg/kg	2.63	0.531	1
C3-Chrysenes	9.35		mg/kg	2.63	0.531	1
C4-Chrysenes	ND		mg/kg	2.63	0.531	1
Benzo(b)fluoranthene	ND		mg/kg	2.63	0.684	1
Benzo(j)+(k)fluoranthene	ND		mg/kg	2.63	0.522	1
Benzo(a)fluoranthene	ND		mg/kg	2.63	0.522	1
Benzo(e)pyrene	ND		mg/kg	2.63	0.542	1
Benzo(a)pyrene	ND		mg/kg	2.63	0.750	1
Perylene	ND		mg/kg	2.63	0.507	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.63	0.714	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.63	0.710	1
Benzo(g,h,i)perylene	ND		mg/kg	2.63	0.698	1
Hopane (T19)	2.99		mg/kg	2.63	0.748	1
C23 Tricyclic Terpane (T4)	10.9		mg/kg	2.63	0.748	1
C24 Tricyclic Terpane (T5)	4.88		mg/kg	2.63	0.748	1
C25 Tricyclic Terpane (T6)	2.03	J	mg/kg	2.63	0.748	1
C24 Tetracyclic Terpane (T6a)	1.71	J	mg/kg	2.63	0.748	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.63	0.748	1
C26 Tricyclic Terpane-22R (T6c)	0.889	J	mg/kg	2.63	0.748	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.63	0.748	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.63	0.748	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.63	0.748	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.63	0.748	1
18a-22,29,30-Trisnorneohopane-TS (T11)	1.41	J	mg/kg	2.63	0.748	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.63	0.748	1



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.63	0.748	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	0.988	J	mg/kg	2.63	0.748	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.63	0.748	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.63	0.748	1
30-Norhopane (T15)	2.82		mg/kg	2.63	0.748	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.63	0.748	1
17a(H)-Diahopane (X)	ND		mg/kg	2.63	0.748	1
30-Normoretane (T17)	ND		mg/kg	2.63	0.748	1
18a(H)&18b(H)-Oleananes (T18)	2.46	J	mg/kg	2.63	0.748	1
Moretane (T20)	ND		mg/kg	2.63	0.748	1
30-Homohopane-22S (T21)	ND		mg/kg	2.63	0.748	1
30-Homohopane-22R (T22)	ND		mg/kg	2.63	0.748	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.63	0.748	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.63	0.748	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.63	0.748	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.63	0.748	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.63	0.748	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.63	0.748	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.63	0.748	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.63	0.748	1
13b(H),17a(H)-20S-Diacholestane (S4)	1.07	J	mg/kg	2.63	0.584	1
13b(H),17a(H)-20R-Diacholestane (S5)	0.651	J	mg/kg	2.63	0.584	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.63	0.584	1
17a(H)20SC27/C29dia	1.34	J	mg/kg	2.63	0.584	1
17a(H)20RC27/C29dia	1.99	J	mg/kg	2.63	0.584	1
Unknown Sterane (S18)	ND		mg/kg	2.63	0.584	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.63	0.584	1
14a,17a-20S-Methylcholestane (S20)	0.659	J	mg/kg	2.63	0.584	1
14a,17a-20R-Methylcholestane (S24)	0.728	J	mg/kg	2.63	0.584	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.63	0.584	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	0.659	J	mg/kg	2.63	0.584	1
14b(H),17b(H)-20R-Cholestane (S14)	1.04	J	mg/kg	2.63	0.584	1
14b(H),17b(H)-20S-Cholestane (S15)	1.11	J	mg/kg	2.63	0.584	1
14b,17b-20R-Methylcholestane (S22)	0.933	J	mg/kg	2.63	0.584	1
14b,17b-20S-Methylcholestane (S23)	1.14	J	mg/kg	2.63	0.584	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	0.907	J	mg/kg	2.63	0.584	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.63	0.584	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	2.66		mg/kg	2.63	0.584	1
C28,20S TAS	1.61	J	mg/kg	2.63	0.584	1
C27,20R TAS	1.76	J	mg/kg	2.63	0.584	1
C28,20R TAS	1.31	J	mg/kg	2.63	0.584	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Benzo(a)pyrene-d12	92		50-130
5B(H)Cholane-Surr	116		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/08/22 19:43
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	ND		mg/kg	0.956	0.294	1
Tetramethyl Lead	ND		mg/kg	0.956	0.294	1
Trimethyl Ethyl Lead	ND		mg/kg	0.956	0.294	1
Diethyl Dimethyl Lead	ND		mg/kg	0.956	0.294	1
Methyl Triethyl Lead	ND		mg/kg	0.956	0.294	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/07/22 19:47
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	2000		mg/kg	10.5	3.02	4
C1-Naphthalenes	10200		mg/kg	10.5	3.02	4
C2-Naphthalenes	23000		mg/kg	10.5	3.02	4
C3-Naphthalenes	17000		mg/kg	10.5	3.02	4
C4-Naphthalenes	8340		mg/kg	10.5	3.02	4
2-Methylnaphthalene	10400		mg/kg	10.5	2.71	4
1-Methylnaphthalene	6540		mg/kg	10.5	3.31	4
Biphenyl	708		mg/kg	10.5	3.25	4
2,6-Dimethylnaphthalene	12300		mg/kg	10.5	2.50	4
Dibenzofuran	389		mg/kg	10.5	3.31	4
Acenaphthylene	42.6		mg/kg	10.5	2.01	4
Acenaphthene	737		mg/kg	10.5	1.85	4
2,3,5-Trimethylnaphthalene	2140		mg/kg	10.5	1.72	4
Fluorene	966		mg/kg	10.5	2.80	4
C1-Fluorenes	2350		mg/kg	10.5	2.80	4
C2-Fluorenes	3740		mg/kg	10.5	2.80	4
C3-Fluorenes	2680		mg/kg	10.5	2.80	4
Dibenzothiophene	443		mg/kg	10.5	2.90	4
C1-Dibenzothiophenes BS	1280		mg/kg	10.5	2.90	4
C2-Dibenzothiophenes	1260		mg/kg	10.5	2.90	4
C3-Dibenzothiophenes	552		mg/kg	10.5	2.90	4
C4-Dibenzothiophenes	147		mg/kg	10.5	2.90	4
Phenanthrene	2500		mg/kg	10.5	3.48	4
C1-Phenanthrenes/Anthracenes	5460		mg/kg	10.5	3.48	4
C2-Phenanthrenes/Anthr BS	4200		mg/kg	10.5	3.48	4
C3-Phenanthrenes/Anthracenes	1250		mg/kg	10.5	3.48	4
C4-Phenanthrenes/Anthracenes	288		mg/kg	10.5	3.48	4
Retene	ND		mg/kg	10.5	2.58	4



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01 D
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	349		mg/kg	10.5	2.17	4
Carbazole	169		mg/kg	10.5	3.44	4
Fluoranthene	40.6		mg/kg	10.5	3.34	4
Benzo(b)fluorene	13.0		mg/kg	10.5	3.05	4
Pyrene	153		mg/kg	10.5	2.76	4
C1-Fluoranthenes/Pyrenes	156		mg/kg	10.5	2.76	4
C2-Fluoranthenes/Pyrenes	74.5		mg/kg	10.5	2.76	4
C3-Fluoranthenes/Pyrenes	33.3		mg/kg	10.5	2.76	4
C4-Fluoranthenes/Pyrenes	15.7		mg/kg	10.5	2.76	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	118		50-130
Phenanthrene-d10	124		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/05/22 03:12
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Benz(a)anthracene	3.87		mg/kg	2.82	0.575	1
Chrysene/Triphenylene	8.00		mg/kg	2.82	0.570	1
C1-Chrysenes	11.3		mg/kg	2.82	0.570	1
C2-Chrysenes BS	8.38		mg/kg	2.82	0.570	1
C3-Chrysenes	11.3		mg/kg	2.82	0.570	1
C4-Chrysenes	ND		mg/kg	2.82	0.570	1
Benzo(b)fluoranthene	0.781	J	mg/kg	2.82	0.734	1
Benzo(j)+(k)fluoranthene	0.675	J	mg/kg	2.82	0.560	1
Benzo(a)fluoranthene	ND		mg/kg	2.82	0.560	1
Benzo(e)pyrene	0.857	J	mg/kg	2.82	0.582	1
Benzo(a)pyrene	ND		mg/kg	2.82	0.806	1
Perylene	ND		mg/kg	2.82	0.545	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.82	0.766	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.82	0.762	1
Benzo(g,h,i)perylene	ND		mg/kg	2.82	0.750	1
Hopane (T19)	1.85	J	mg/kg	2.82	0.803	1
C23 Tricyclic Terpane (T4)	13.3		mg/kg	2.82	0.803	1
C24 Tricyclic Terpane (T5)	6.58		mg/kg	2.82	0.803	1
C25 Tricyclic Terpane (T6)	2.47	J	mg/kg	2.82	0.803	1
C24 Tetracyclic Terpane (T6a)	1.47	J	mg/kg	2.82	0.803	1
C26 Tricyclic Terpane-22S (T6b)	1.38	J	mg/kg	2.82	0.803	1
C26 Tricyclic Terpane-22R (T6c)	1.32	J	mg/kg	2.82	0.803	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.82	0.803	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.82	0.803	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.82	0.803	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.82	0.803	1
18a-22,29,30-Trisnorneohopane-TS (T11)	1.16	J	mg/kg	2.82	0.803	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.82	0.803	1



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.82	0.803	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.82	0.803	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.82	0.803	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.82	0.803	1
30-Norhopane (T15)	1.68	J	mg/kg	2.82	0.803	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.82	0.803	1
17a(H)-Diahopane (X)	ND		mg/kg	2.82	0.803	1
30-Normoretane (T17)	ND		mg/kg	2.82	0.803	1
18a(H)&18b(H)-Oleananes (T18)	1.39	J	mg/kg	2.82	0.803	1
Moretane (T20)	ND		mg/kg	2.82	0.803	1
30-Homohopane-22S (T21)	ND		mg/kg	2.82	0.803	1
30-Homohopane-22R (T22)	ND		mg/kg	2.82	0.803	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.82	0.803	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.82	0.803	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.82	0.803	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.82	0.803	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.82	0.803	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.82	0.803	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.82	0.803	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.82	0.803	1
13b(H),17a(H)-20S-Diacholestane (S4)	1.22	J	mg/kg	2.82	0.627	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.82	0.627	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.82	0.627	1
17a(H)20SC27/C29dia	0.700	J	mg/kg	2.82	0.627	1
17a(H)20RC27/C29dia	1.06	J	mg/kg	2.82	0.627	1
Unknown Sterane (S18)	ND		mg/kg	2.82	0.627	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.82	0.627	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.82	0.627	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.82	0.627	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.82	0.627	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.82	0.627	1
14b(H),17b(H)-20R-Cholestane (S14)	0.700	J	mg/kg	2.82	0.627	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.82	0.627	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.82	0.627	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.82	0.627	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.82	0.627	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.82	0.627	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	1.22	J	mg/kg	2.82	0.627	1
C28,20S TAS	0.737	J	mg/kg	2.82	0.627	1
C27,20R TAS	0.764	J	mg/kg	2.82	0.627	1
C28,20R TAS	ND		mg/kg	2.82	0.627	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Benzo(a)pyrene-d12	86		50-130
5B(H)Cholane-Surr	114		50-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/08/22 20:27
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	ND		mg/kg	0.998	0.307	1
Tetramethyl Lead	ND		mg/kg	0.998	0.307	1
Trimethyl Ethyl Lead	ND		mg/kg	0.998	0.307	1
Diethyl Dimethyl Lead	ND		mg/kg	0.998	0.307	1
Methyl Triethyl Lead	ND		mg/kg	0.998	0.307	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02 D
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/07/22 21:10
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	1770		mg/kg	11.3	3.24	4
C1-Naphthalenes	9660		mg/kg	11.3	3.24	4
C2-Naphthalenes	19100		mg/kg	11.3	3.24	4
C3-Naphthalenes	14300		mg/kg	11.3	3.24	4
C4-Naphthalenes	7060		mg/kg	11.3	3.24	4
2-Methylnaphthalene	9980		mg/kg	11.3	2.91	4
1-Methylnaphthalene	6110		mg/kg	11.3	3.56	4
Biphenyl	318		mg/kg	11.3	3.49	4
2,6-Dimethylnaphthalene	10400		mg/kg	11.3	2.68	4
Dibenzofuran	297		mg/kg	11.3	3.56	4
Acenaphthylene	35.8		mg/kg	11.3	2.15	4
Acenaphthene	614		mg/kg	11.3	1.99	4
2,3,5-Trimethylnaphthalene	2140		mg/kg	11.3	1.85	4
Fluorene	751		mg/kg	11.3	3.01	4
C1-Fluorenes	1830		mg/kg	11.3	3.01	4
C2-Fluorenes	3010		mg/kg	11.3	3.01	4
C3-Fluorenes	2290		mg/kg	11.3	3.01	4
Dibenzothiophene	312		mg/kg	11.3	3.11	4
C1-Dibenzothiophenes BS	881		mg/kg	11.3	3.11	4
C2-Dibenzothiophenes	844		mg/kg	11.3	3.11	4
C3-Dibenzothiophenes	396		mg/kg	11.3	3.11	4
C4-Dibenzothiophenes	126		mg/kg	11.3	3.11	4
Phenanthrene	2020		mg/kg	11.3	3.74	4
C1-Phenanthrenes/Anthracenes	4670		mg/kg	11.3	3.74	4
C2-Phenanthrenes/Anthr BS	4140		mg/kg	11.3	3.74	4
C3-Phenanthrenes/Anthracenes	1610		mg/kg	11.3	3.74	4
C4-Phenanthrenes/Anthracenes	441		mg/kg	11.3	3.74	4
Retene	ND		mg/kg	11.3	2.77	4



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02 D
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	302		mg/kg	11.3	2.33	4
Carbazole	64.4		mg/kg	11.3	3.69	4
Fluoranthene	53.1		mg/kg	11.3	3.59	4
Benzo(b)fluorene	17.7		mg/kg	11.3	3.27	4
Pyrene	205		mg/kg	11.3	2.97	4
C1-Fluoranthenes/Pyrenes	272		mg/kg	11.3	2.97	4
C2-Fluoranthenes/Pyrenes	143		mg/kg	11.3	2.97	4
C3-Fluoranthenes/Pyrenes	54.5		mg/kg	11.3	2.97	4
C4-Fluoranthenes/Pyrenes	18.6		mg/kg	11.3	2.97	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	111		50-130
Phenanthrene-d10	116		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-03
 Client ID: S233-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 14:00
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 10/20/22 09:46
 Analyst: AH

Extraction Method: EPA 3510C
 Extraction Date: 10/19/22 18:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	150	E	ug/l	0.10	0.05	1
Fluorene	6.4		ug/l	0.10	0.01	1
Phenanthrene	11		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.34		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.02	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.01	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	119		23-120
2-Fluorobiphenyl	76		15-120
4-Terphenyl-d14	48		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-03 D
 Client ID: S233-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 14:00
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 10/20/22 10:02
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 10/19/22 18:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	160		ug/l	0.50	0.24	5

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2256785**Project Number:** 200.00135.006**Report Date:** 11/11/22**SAMPLE RESULTS**

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/05/22 04:36
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Benz(a)anthracene	1.11	J	mg/kg	2.94	0.600	1
Chrysene/Triphenylene	3.02		mg/kg	2.94	0.595	1
C1-Chrysenes	3.55		mg/kg	2.94	0.595	1
C2-Chrysenes BS	3.46		mg/kg	2.94	0.595	1
C3-Chrysenes	ND		mg/kg	2.94	0.595	1
C4-Chrysenes	ND		mg/kg	2.94	0.595	1
Benzo(b)fluoranthene	ND		mg/kg	2.94	0.766	1
Benzo(j)+(k)fluoranthene	ND		mg/kg	2.94	0.584	1
Benzo(a)fluoranthene	ND		mg/kg	2.94	0.584	1
Benzo(e)pyrene	0.806	J	mg/kg	2.94	0.607	1
Benzo(a)pyrene	ND		mg/kg	2.94	0.840	1
Perylene	ND		mg/kg	2.94	0.568	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.94	0.799	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.94	0.795	1
Benzo(g,h,i)perylene	0.866	J	mg/kg	2.94	0.782	1
Hopane (T19)	1.14	J	mg/kg	2.94	0.838	1
C23 Tricyclic Terpane (T4)	4.32		mg/kg	2.94	0.838	1
C24 Tricyclic Terpane (T5)	2.39	J	mg/kg	2.94	0.838	1
C25 Tricyclic Terpane (T6)	1.16	J	mg/kg	2.94	0.838	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.94	0.838	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.94	0.838	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.94	0.838	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.94	0.838	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.94	0.838	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.94	0.838	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.94	0.838	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.94	0.838	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.94	0.838	1



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.94	0.838	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.94	0.838	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.94	0.838	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.94	0.838	1
30-Norhopane (T15)	1.28	J	mg/kg	2.94	0.838	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.94	0.838	1
17a(H)-Diahopane (X)	ND		mg/kg	2.94	0.838	1
30-Normoretane (T17)	ND		mg/kg	2.94	0.838	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.94	0.838	1
Moretane (T20)	ND		mg/kg	2.94	0.838	1
30-Homohopane-22S (T21)	ND		mg/kg	2.94	0.838	1
30-Homohopane-22R (T22)	ND		mg/kg	2.94	0.838	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.94	0.838	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.94	0.838	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.94	0.838	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.94	0.838	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.94	0.838	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.94	0.838	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.94	0.838	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.94	0.838	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.94	0.654	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.94	0.654	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.94	0.654	1
17a(H)20SC27/C29dia	ND		mg/kg	2.94	0.654	1
17a(H)20RC27/C29dia	ND		mg/kg	2.94	0.654	1
Unknown Sterane (S18)	ND		mg/kg	2.94	0.654	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.94	0.654	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.94	0.654	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.94	0.654	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.94	0.654	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.94	0.654	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.94	0.654	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.94	0.654	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.94	0.654	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.94	0.654	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.94	0.654	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.94	0.654	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	0.763	J	mg/kg	2.94	0.654	1
C28,20S TAS	ND		mg/kg	2.94	0.654	1
C27,20R TAS	ND		mg/kg	2.94	0.654	1
C28,20R TAS	ND		mg/kg	2.94	0.654	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Benzo(a)pyrene-d12	90		50-130
5B(H)Cholane-Surr	115		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/08/22 21:11
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	0.681	J	mg/kg	0.942	0.290	1
Tetramethyl Lead	ND		mg/kg	0.942	0.290	1
Trimethyl Ethyl Lead	ND		mg/kg	0.942	0.290	1
Diethyl Dimethyl Lead	ND		mg/kg	0.942	0.290	1
Methyl Triethyl Lead	ND		mg/kg	0.942	0.290	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8270E-SIM(M)
 Analytical Date: 11/07/22 22:34
 Analyst: CNC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3350		mg/kg	5.89	1.69	2
C1-Naphthalenes	4920		mg/kg	5.89	1.69	2
C2-Naphthalenes	5820		mg/kg	5.89	1.69	2
C3-Naphthalenes	4220		mg/kg	5.89	1.69	2
C4-Naphthalenes	2090		mg/kg	5.89	1.69	2
2-Methylnaphthalene	5440		mg/kg	5.89	1.52	2
1-Methylnaphthalene	2750		mg/kg	5.89	1.86	2
Biphenyl	242		mg/kg	5.89	1.82	2
2,6-Dimethylnaphthalene	3130		mg/kg	5.89	1.40	2
Dibenzofuran	102		mg/kg	5.89	1.85	2
Acenaphthylene	15.3		mg/kg	5.89	1.12	2
Acenaphthene	165		mg/kg	5.89	1.04	2
2,3,5-Trimethylnaphthalene	628		mg/kg	5.89	0.963	2
Fluorene	228		mg/kg	5.89	1.57	2
C1-Fluorenes	563		mg/kg	5.89	1.57	2
C2-Fluorenes	917		mg/kg	5.89	1.57	2
C3-Fluorenes	659		mg/kg	5.89	1.57	2
Dibenzothiophene	134		mg/kg	5.89	1.62	2
C1-Dibenzothiophenes BS	397		mg/kg	5.89	1.62	2
C2-Dibenzothiophenes	416		mg/kg	5.89	1.62	2
C3-Dibenzothiophenes	212		mg/kg	5.89	1.62	2
C4-Dibenzothiophenes	65.9		mg/kg	5.89	1.62	2
Phenanthrene	570		mg/kg	5.89	1.95	2
C1-Phenanthrenes/Anthracenes	1220		mg/kg	5.89	1.95	2
C2-Phenanthrenes/Anthr BS	986		mg/kg	5.89	1.95	2
C3-Phenanthrenes/Anthracenes	318		mg/kg	5.89	1.95	2
C4-Phenanthrenes/Anthracenes	83.0		mg/kg	5.89	1.95	2
Retene	ND		mg/kg	5.89	1.44	2



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04 D
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	67.4		mg/kg	5.89	1.21	2
Carbazole	11.0		mg/kg	5.89	1.93	2
Fluoranthene	11.4		mg/kg	5.89	1.87	2
Benzo(b)fluorene	3.91	J	mg/kg	5.89	1.70	2
Pyrene	41.6		mg/kg	5.89	1.55	2
C1-Fluoranthenes/Pyrenes	42.6		mg/kg	5.89	1.55	2
C2-Fluoranthenes/Pyrenes	22.8		mg/kg	5.89	1.55	2
C3-Fluoranthenes/Pyrenes	11.2		mg/kg	5.89	1.55	2
C4-Fluoranthenes/Pyrenes	5.13	J	mg/kg	5.89	1.55	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	113		50-130
Phenanthrene-d10	115		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-05
 Client ID: TG05MW01-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 12:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 10/20/22 10:19
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 10/19/22 18:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	190	E	ug/l	0.10	0.05	1
Fluorene	5.8		ug/l	0.10	0.01	1
Phenanthrene	8.0		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.16		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	7	Q	23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	75		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-05 D
 Client ID: TG05MW01-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 12:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 10/20/22 10:35
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 10/19/22 18:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	210		ug/l	0.50	0.24	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM
Analytical Date: 10/20/22 12:12
Analyst: AH

Extraction Method: EPA 3510C
Extraction Date: 10/19/22 18:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03,05 Batch: WG1701671-1					
Naphthalene	0.07	J	ug/l	0.10	0.05
Fluorene	0.05	J	ug/l	0.10	0.01
Phenanthrene	0.05	J	ug/l	0.05	0.02
Anthracene	0.03	J	ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	73		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 11/04/22 21:38
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
Naphthalene	ND		mg/kg	3.00	0.862
C1-Naphthalenes	ND		mg/kg	3.00	0.862
C2-Naphthalenes	ND		mg/kg	3.00	0.862
C3-Naphthalenes	ND		mg/kg	3.00	0.862
C4-Naphthalenes	ND		mg/kg	3.00	0.862
2-Methylnaphthalene	ND		mg/kg	3.00	0.774
1-Methylnaphthalene	ND		mg/kg	3.00	0.945
Biphenyl	ND		mg/kg	3.00	0.927
2,6-Dimethylnaphthalene	ND		mg/kg	3.00	0.713
Dibenzofuran	ND		mg/kg	3.00	0.945
Acenaphthylene	ND		mg/kg	3.00	0.572
Acenaphthene	ND		mg/kg	3.00	0.529
2,3,5-Trimethylnaphthalene	ND		mg/kg	3.00	0.491
Fluorene	ND		mg/kg	3.00	0.800
C1-Fluorenes	ND		mg/kg	3.00	0.800
C2-Fluorenes	ND		mg/kg	3.00	0.800
C3-Fluorenes	ND		mg/kg	3.00	0.800
Dibenzothiophene	ND		mg/kg	3.00	0.827
C1-Dibenzothiophenes BS	ND		mg/kg	3.00	0.827
C2-Dibenzothiophenes	1.03	J	mg/kg	3.00	0.827
C3-Dibenzothiophenes	ND		mg/kg	3.00	0.827
C4-Dibenzothiophenes	ND		mg/kg	3.00	0.827
Phenanthrene	ND		mg/kg	3.00	0.994
C1-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C2-Phenanthrenes/Anthr BS	ND		mg/kg	3.00	0.994
C3-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C4-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
Retene	0.780	J	mg/kg	3.00	0.736
Anthracene	ND		mg/kg	3.00	0.618



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 11/04/22 21:38
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
Carbazole	ND		mg/kg	3.00	0.981
Fluoranthene	ND		mg/kg	3.00	0.953
Benzo(b)fluorene	ND		mg/kg	3.00	0.869
Pyrene	ND		mg/kg	3.00	0.789
C1-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C2-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C3-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C4-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
Benz(a)anthracene	ND		mg/kg	3.00	0.612
Chrysene/Triphenylene	ND		mg/kg	3.00	0.606
C1-Chrysenes	ND		mg/kg	3.00	0.606
C2-Chrysenes BS	ND		mg/kg	3.00	0.606
C3-Chrysenes	ND		mg/kg	3.00	0.606
C4-Chrysenes	ND		mg/kg	3.00	0.606
Benzo(b)fluoranthene	ND		mg/kg	3.00	0.780
Benzo(j)+(k)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(a)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(e)pyrene	ND		mg/kg	3.00	0.619
Benzo(a)pyrene	ND		mg/kg	3.00	0.856
Perylene	ND		mg/kg	3.00	0.579
Indeno(1,2,3-cd)pyrene	ND		mg/kg	3.00	0.814
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	3.00	0.810
Benzo(g,h,i)perylene	ND		mg/kg	3.00	0.797
Hopane (T19)	ND		mg/kg	3.00	0.854
C23 Tricyclic Terpane (T4)	ND		mg/kg	3.00	0.854
C24 Tricyclic Terpane (T5)	ND		mg/kg	3.00	0.854
C25 Tricyclic Terpane (T6)	ND		mg/kg	3.00	0.854
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	3.00	0.854
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	3.00	0.854



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 11/04/22 21:38
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	3.00	0.854
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	3.00	0.854
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	3.00	0.854
18a-22,29,30-Trisnorhopane-TS (T11)	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22S	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22R	ND		mg/kg	3.00	0.854
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	3.00	0.854
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	3.00	0.854
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	3.00	0.854
30-Norhopane (T15)	ND		mg/kg	3.00	0.854
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	3.00	0.854
17a(H)-Diahopane (X)	ND		mg/kg	3.00	0.854
30-Normoretane (T17)	ND		mg/kg	3.00	0.854
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	3.00	0.854
Moretane (T20)	ND		mg/kg	3.00	0.854
30-Homohopane-22S (T21)	ND		mg/kg	3.00	0.854
30-Homohopane-22R (T22)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22S (T26)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22R (T27)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22S (T30)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22R (T31)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22S (T32)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22R (T33)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22S (T34)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22R (T35)	ND		mg/kg	3.00	0.854
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	3.00	0.666
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	3.00	0.666



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 11/04/22 21:38
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	3.00	0.666
17a(H)20SC27/C29dia	ND		mg/kg	3.00	0.666
17a(H)20RC27/C29dia	ND		mg/kg	3.00	0.666
Unknown Sterane (S18)	ND		mg/kg	3.00	0.666
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	3.00	0.666
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	3.00	0.666
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	3.00	0.666
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	3.00	0.666
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	3.00	0.666
C26,20R+C27,20S TAS	ND		mg/kg	3.00	0.666
C28,20S TAS	ND		mg/kg	3.00	0.666
C27,20R TAS	ND		mg/kg	3.00	0.666
C28,20R TAS	ND		mg/kg	3.00	0.666

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	101		50-130
Phenanthrene-d10	119		50-130
Benzo(a)pyrene-d12	96		50-130
5B(H)Cholane-Surr	115		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 11/08/22 17:30
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 15:25

Parameter	Result	Qualifier	Units	RL	MDL
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707274-1					
Tetraethyl Lead	ND		mg/kg	1.00	0.307
Tetramethyl Lead	ND		mg/kg	1.00	0.307
Trimethyl Ethyl Lead	ND		mg/kg	1.00	0.307
Diethyl Dimethyl Lead	ND		mg/kg	1.00	0.307
Methyl Triethyl Lead	ND		mg/kg	1.00	0.307



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2256785

Report Date: 11/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03,05 Batch: WG1701671-2 WG1701671-3								
Naphthalene	69		77		40-140	11		40
Fluorene	76		90		40-140	17		40
Phenanthrene	75		87		40-140	15		40
Anthracene	75		88		40-140	16		40
Pyrene	72		94		26-127	27		40
Benzo(a)anthracene	80		97		40-140	19		40
Chrysene	82		97		40-140	17		40
Benzo(b)fluoranthene	80		92		40-140	14		40
Benzo(a)pyrene	71		84		40-140	17		40
Benzo(ghi)perylene	80		90		40-140	12		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	79		92		23-120
2-Fluorobiphenyl	61		70		15-120
4-Terphenyl-d14	60		82		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1707272-2 WG1707272-3								
Naphthalene	115		114		50-130	1		30
2-Methylnaphthalene	106		105		50-130	1		30
Acenaphthylene	108		108		50-130	0		30
Acenaphthene	109		108		50-130	1		30
Fluorene	113		114		50-130	1		30
Phenanthrene	111		110		50-130	1		30
Anthracene	129		130		50-130	1		30
Fluoranthene	123		121		50-130	2		30
Pyrene	120		119		50-130	1		30
Benz(a)anthracene	114		114		50-130	0		30
Chrysene/Triphenylene	111		111		50-130	0		30
Benzo(b)fluoranthene	107		110		50-130	3		30
Benzo(j)+(k)fluoranthene	120		117		50-130	3		30
Benzo(a)pyrene	106		105		50-130	1		30
Indeno(1,2,3-cd)pyrene	104		105		50-130	1		30
Dibenz(a,h)+(a,c)anthracene	105		103		50-130	2		30
Benzo(g,h,i)perylene	108		107		50-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1707272-2 WG1707272-3								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
Naphthalene-d8	119		115		50-130
Phenanthrene-d10	124		120		50-130
Benzo(a)pyrene-d12	95		93		50-130
5B(H)Cholane-Surr	112		110		50-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2256785

Report Date: 11/11/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1707274-2 WG1707274-3								
Tetraethyl Lead	78		78		50-130	0		30

PETROLEUM HYDROCARBONS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
 Client ID: TG05MW01-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8015D(M)
 Analytical Date: 11/04/22 00:12
 Analyst: WR
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	1270		mg/kg	175	52.0	1
n-Decane (C10)	1110		mg/kg	175	55.9	1
n-Undecane (C11)	1380		mg/kg	175	52.3	1
n-Dodecane (C12)	3160		mg/kg	175	38.2	1
n-Tridecane (C13)	16400		mg/kg	175	48.1	1
2,6,10-Trimethyldodecane (1380)	6190		mg/kg	175	26.4	1
n-Tetradecane (C14)	8320		mg/kg	175	26.4	1
2,6,10-Trimethyltridecane (1470)	10400		mg/kg	175	20.9	1
n-Pentadecane (C15)	ND		mg/kg	175	20.9	1
n-Hexadecane (C16)	ND		mg/kg	175	26.4	1
Norpristane (1650)	6440		mg/kg	175	57.8	1
n-Heptadecane (C17)	ND		mg/kg	175	57.8	1
Pristane	13100		mg/kg	175	37.4	1
n-Octadecane (C18)	ND		mg/kg	175	35.2	1
Phytane	5250		mg/kg	175	22.0	1
n-Nonadecane (C19)	ND		mg/kg	175	45.0	1
n-Eicosane (C20)	ND		mg/kg	175	24.8	1
n-Heneicosane (C21)	404		mg/kg	175	21.0	1
n-Docosane (C22)	ND		mg/kg	175	18.3	1
n-Tricosane (C23)	ND		mg/kg	175	22.3	1
n-Tetracosane (C24)	ND		mg/kg	175	29.3	1
n-Pentacosane (C25)	ND		mg/kg	175	92.8	1
n-Hexacosane (C26)	ND		mg/kg	175	25.7	1
n-Heptacosane (C27)	ND		mg/kg	175	21.1	1
n-Octacosane (C28)	ND		mg/kg	175	37.6	1
n-Nonacosane (C29)	ND		mg/kg	175	117.	1
n-Triacontane (C30)	ND		mg/kg	175	20.1	1
n-Hentriacontane (C31)	ND		mg/kg	175	24.8	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-01
Client ID: TG05MW01-NAPL-221012
Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 09:40
Date Received: 10/12/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	175	22.1	1
n-Tritriacontane (C33)	ND		mg/kg	175	24.7	1
n-Tetracontane (C34)	ND		mg/kg	175	27.9	1
n-Pentatriacontane (C35)	ND		mg/kg	175	30.6	1
n-Hexatriacontane (C36)	ND		mg/kg	175	34.9	1
n-Heptatriacontane (C37)	ND		mg/kg	175	38.9	1
n-Octatriacontane (C38)	ND		mg/kg	175	40.8	1
n-Nonatriacontane (C39)	ND		mg/kg	175	56.9	1
n-Tetracontane (C40)	ND		mg/kg	175	56.9	1
Total Petroleum Hydrocarbons (C9-C44)	1050000		mg/kg	5780	1270	1
Total Saturated Hydrocarbons	73400		mg/kg	175	18.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	129		50-130
d50-Tetracosane	115		50-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8015D(M)
 Analytical Date: 11/04/22 01:41
 Analyst: WR
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	2530		mg/kg	188	55.8	1
n-Decane (C10)	3920		mg/kg	188	60.0	1
n-Undecane (C11)	4980		mg/kg	188	56.2	1
n-Dodecane (C12)	7430		mg/kg	188	41.0	1
n-Tridecane (C13)	18100		mg/kg	188	51.6	1
2,6,10-Trimethyldodecane (1380)	3710		mg/kg	188	28.3	1
n-Tetradecane (C14)	11200		mg/kg	188	28.3	1
2,6,10-Trimethyltridecane (1470)	7110		mg/kg	188	22.4	1
n-Pentadecane (C15)	6460		mg/kg	188	22.4	1
n-Hexadecane (C16)	3840		mg/kg	188	28.3	1
Norpristane (1650)	4190		mg/kg	188	62.1	1
n-Heptadecane (C17)	4400		mg/kg	188	62.1	1
Pristane	7710		mg/kg	188	40.2	1
n-Octadecane (C18)	3300		mg/kg	188	37.8	1
Phytane	3220		mg/kg	188	23.6	1
n-Nonadecane (C19)	2620		mg/kg	188	48.4	1
n-Eicosane (C20)	1860		mg/kg	188	26.6	1
n-Heneicosane (C21)	1540		mg/kg	188	22.5	1
n-Docosane (C22)	830		mg/kg	188	19.6	1
n-Tricosane (C23)	508		mg/kg	188	23.9	1
n-Tetracosane (C24)	215		mg/kg	188	31.5	1
n-Pentacosane (C25)	108	J	mg/kg	188	99.6	1
n-Hexacosane (C26)	67.0	J	mg/kg	188	27.6	1
n-Heptacosane (C27)	43.3	J	mg/kg	188	22.6	1
n-Octacosane (C28)	95.2	J	mg/kg	188	40.4	1
n-Nonacosane (C29)	ND		mg/kg	188	125.	1
n-Triacontane (C30)	ND		mg/kg	188	21.6	1
n-Hentriacontane (C31)	ND		mg/kg	188	26.7	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-02
 Client ID: S240-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:20
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	188	23.7	1
n-Tritriacontane (C33)	ND		mg/kg	188	26.5	1
n-Tetratriacontane (C34)	ND		mg/kg	188	29.9	1
n-Pentatriacontane (C35)	ND		mg/kg	188	32.8	1
n-Hexatriacontane (C36)	ND		mg/kg	188	37.4	1
n-Heptatriacontane (C37)	ND		mg/kg	188	41.8	1
n-Octatriacontane (C38)	ND		mg/kg	188	43.8	1
n-Nonatriacontane (C39)	ND		mg/kg	188	61.1	1
n-Tetracontane (C40)	ND		mg/kg	188	61.1	1
Total Petroleum Hydrocarbons (C9-C44)	919000		mg/kg	6210	1370	1
Total Saturated Hydrocarbons	100000	J	mg/kg	188	19.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	102		50-130
d50-Tetracosane	104		50-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8015D(M)
 Analytical Date: 11/04/22 03:10
 Analyst: WR
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
 Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	6410		mg/kg	196	58.2	1
n-Decane (C10)	3440		mg/kg	196	62.6	1
n-Undecane (C11)	2900		mg/kg	196	58.6	1
n-Dodecane (C12)	4180		mg/kg	196	42.8	1
n-Tridecane (C13)	8680		mg/kg	196	53.8	1
2,6,10-Trimethyldodecane (1380)	2670		mg/kg	196	29.5	1
n-Tetradecane (C14)	2500		mg/kg	196	29.5	1
2,6,10-Trimethyltridecane (1470)	4210		mg/kg	196	23.4	1
n-Pentadecane (C15)	616		mg/kg	196	23.4	1
n-Hexadecane (C16)	ND		mg/kg	196	29.6	1
Norpristane (1650)	2450		mg/kg	196	64.8	1
n-Heptadecane (C17)	ND		mg/kg	196	64.8	1
Pristane	4390		mg/kg	196	41.9	1
n-Octadecane (C18)	ND		mg/kg	196	39.4	1
Phytane	1920		mg/kg	196	24.6	1
n-Nonadecane (C19)	ND		mg/kg	196	50.4	1
n-Eicosane (C20)	ND		mg/kg	196	27.8	1
n-Heneicosane (C21)	180	J	mg/kg	196	23.5	1
n-Docosane (C22)	76.0	J	mg/kg	196	20.5	1
n-Tricosane (C23)	50.6	J	mg/kg	196	25.0	1
n-Tetracosane (C24)	ND		mg/kg	196	32.8	1
n-Pentacosane (C25)	ND		mg/kg	196	104.	1
n-Hexacosane (C26)	ND		mg/kg	196	28.8	1
n-Heptacosane (C27)	ND		mg/kg	196	23.6	1
n-Octacosane (C28)	89.7	J	mg/kg	196	42.1	1
n-Nonacosane (C29)	ND		mg/kg	196	131.	1
n-Triacontane (C30)	ND		mg/kg	196	22.5	1
n-Hentriacontane (C31)	ND		mg/kg	196	27.8	1



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-04
 Client ID: S235-NAPL-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 10:10
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	196	24.7	1
n-Tritriacontane (C33)	ND		mg/kg	196	27.6	1
n-Tettratriacontane (C34)	ND		mg/kg	196	31.2	1
n-Pentatriacontane (C35)	ND		mg/kg	196	34.2	1
n-Hexatriacontane (C36)	ND		mg/kg	196	39.0	1
n-Heptatriacontane (C37)	ND		mg/kg	196	43.6	1
n-Octatriacontane (C38)	ND		mg/kg	196	45.8	1
n-Nonatriacontane (C39)	ND		mg/kg	196	63.7	1
n-Tetracontane (C40)	ND		mg/kg	196	63.7	1
Total Petroleum Hydrocarbons (C9-C44)	677000		mg/kg	6480	1420	1
Total Saturated Hydrocarbons	44800	J	mg/kg	196	20.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	109		50-130
d50-Tetracosane	106		50-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D(M)
Analytical Date: 11/03/22 19:44
Analyst: WR

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
n-Nonane (C9)	ND		mg/kg	200	59.3
n-Decane (C10)	ND		mg/kg	200	63.8
n-Undecane (C11)	ND		mg/kg	200	59.7
n-Dodecane (C12)	ND		mg/kg	200	43.6
n-Tridecane (C13)	ND		mg/kg	200	54.9
2,6,10-Trimethyldodecane (1380)	ND		mg/kg	200	30.1
n-Tetradecane (C14)	ND		mg/kg	200	30.1
2,6,10-Trimethyltridecane (1470)	ND		mg/kg	200	23.9
n-Pentadecane (C15)	ND		mg/kg	200	23.9
n-Hexadecane (C16)	ND		mg/kg	200	30.1
Norpristane (1650)	ND		mg/kg	200	66.0
n-Heptadecane (C17)	ND		mg/kg	200	66.0
Pristane	ND		mg/kg	200	42.7
n-Octadecane (C18)	ND		mg/kg	200	40.1
Phytane	ND		mg/kg	200	25.1
n-Nonadecane (C19)	ND		mg/kg	200	51.4
n-Eicosane (C20)	ND		mg/kg	200	28.3
n-Heneicosane (C21)	ND		mg/kg	200	23.9
n-Docosane (C22)	ND		mg/kg	200	20.9
n-Tricosane (C23)	ND		mg/kg	200	25.4
n-Tetracosane (C24)	ND		mg/kg	200	33.5
n-Pentacosane (C25)	ND		mg/kg	200	106.
n-Hexacosane (C26)	ND		mg/kg	200	29.4
n-Heptacosane (C27)	ND		mg/kg	200	24.1
n-Octacosane (C28)	ND		mg/kg	200	42.9
n-Nonacosane (C29)	ND		mg/kg	200	133.
n-Triacontane (C30)	ND		mg/kg	200	22.9
n-Hentriacontane (C31)	ND		mg/kg	200	28.3
n-Dotriacontane (C32)	ND		mg/kg	200	25.2



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8015D(M)
Analytical Date: 11/03/22 19:44
Analyst: WR

Extraction Method: EPA 3580A
Extraction Date: 11/02/22 14:17

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 01-02,04 Batch: WG1707272-1					
n-Tritriacontane (C33)	ND		mg/kg	200	28.1
n-Tetratriacontane (C34)	ND		mg/kg	200	31.8
n-Pentatriacontane (C35)	ND		mg/kg	200	34.9
n-Hexatriacontane (C36)	ND		mg/kg	200	39.8
n-Heptatriacontane (C37)	ND		mg/kg	200	44.4
n-Octatriacontane (C38)	ND		mg/kg	200	46.6
n-Nonatriacontane (C39)	ND		mg/kg	200	64.9
n-Tetracontane (C40)	ND		mg/kg	200	64.9
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/kg	6600	1450
Total Saturated Hydrocarbons	ND		mg/kg	200	20.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	107		50-130
d50-Tetracosane	108		50-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Saturated Hydrocarbons by GC-FID - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1707272-2 WG1707272-3								
n-Nonane (C9)	98		99		50-130	1		30
n-Decane (C10)	90		90		50-130	0		30
n-Dodecane (C12)	95		99		50-130	4		30
n-Tetradecane (C14)	98		97		50-130	1		30
n-Hexadecane (C16)	106		105		50-130	1		30
n-Octadecane (C18)	113		113		50-130	0		30
n-Nonadecane (C19)	80		74		50-130	8		30
n-Eicosane (C20)	102		100		50-130	2		30
n-Docosane (C22)	106		105		50-130	1		30
n-Tetracosane (C24)	108		108		50-130	0		30
n-Hexacosane (C26)	102		102		50-130	0		30
n-Octacosane (C28)	109		118		50-130	8		30
n-Triacontane (C30)	101		100		50-130	1		30
n-Hexatriacontane (C36)	89		88		50-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
ortho-terphenyl	115		117		50-130
d50-Tetracosane	108		105		50-130

METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-03
 Client ID: S233-GW-221012
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/12/22 14:00
 Date Received: 10/12/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	10/17/22 07:24	10/18/22 10:36	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

SAMPLE RESULTS

Lab ID: L2256785-05

Date Collected: 10/12/22 12:10

Client ID: TG05MW01-GW-221012

Date Received: 10/12/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	10/17/22 07:24	10/18/22 10:45	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 03,05 Batch: WG1700034-1										
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	10/17/22 07:24	10/18/22 10:06	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 03,05 Batch: WG1700034-2								
Lead, Dissolved	113		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2256785

Project Number: 200.00135.006

Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 03,05 QC Batch ID: WG1700034-3 QC Sample: L2256785-03 Client ID: S233-GW-221012												
Lead, Dissolved	ND	530	540.5	102	-	-	-	-	75-125	-	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2256785

Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 03,05 QC Batch ID: WG1700034-4 QC Sample: L2256785-03 Client ID: S233-GW-221012						
Lead, Dissolved	ND	ND	ug/l	NC		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:11112218:40
Lab Number: L2256785
Report Date: 11/11/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2256785-01A	Vial unpreserved	A	NA		2.6	Y	Absent		A2-PIANO8260(365)
L2256785-01B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		A2-ORGLEAD(365),A2-SHC(365),A2-ALKPAH/BIOMARKER(365)
L2256785-02A	Vial unpreserved	A	NA		2.6	Y	Absent		A2-PIANO8260(365)
L2256785-02B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		A2-ORGLEAD(365),A2-SHC(365),A2-ALKPAH/BIOMARKER(365)
L2256785-03A	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)
L2256785-03B	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)
L2256785-03C	Vial HCl preserved	A	NA		2.6	Y	Absent		8011(14)
L2256785-03D	Plastic 250ml unpreserved	A	7	7	2.6	Y	Absent		-
L2256785-03E	Amber 250ml unpreserved	A	NA		2.6	Y	Absent		PA-PAHSIM-LVI(7)
L2256785-03F	Amber 250ml unpreserved	A	NA		2.6	Y	Absent		PA-PAHSIM-LVI(7)
L2256785-03X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.6	Y	Absent		PB-6020S-PPB(180)
L2256785-04A	Vial unpreserved	A	NA		2.6	Y	Absent		A2-PIANO8260(365)
L2256785-04B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		A2-ORGLEAD(365),A2-SHC(365),A2-ALKPAH/BIOMARKER(365)
L2256785-05A	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)
L2256785-05B	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)
L2256785-05C	Vial HCl preserved	A	NA		2.6	Y	Absent		8011(14)
L2256785-05D	Plastic 500ml unpreserved	A	7	7	2.6	Y	Absent		-
L2256785-05E	Amber 250ml unpreserved	A	NA		2.6	Y	Absent		PA-PAHSIM-LVI(7)
L2256785-05F	Amber 250ml unpreserved	A	NA		2.6	Y	Absent		PA-PAHSIM-LVI(7)
L2256785-05X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.6	Y	Absent		PB-6020S-PPB(180)



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

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Report Date: 11/11/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2256785
Report Date: 11/11/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 10/13/22

ALPHA Job #: L22 56785

8 Walker Drive
Westport, MA 01581
Tel: 508-836-0220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-5300

Project Information

Project Name: PES-Refinery
Project Location: Philadelphia, PA
Project #: 200.0035
Project Manager: William Schmidt
ALPHA Quote #: 18559

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client Info PO #:

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Ave.
Hamilton, NJ
Phone: 609.584.0090
Email: William.Schmidt@ransom.com

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

Additional Project Information:

LAB filters Pb for Short list 1-5 Samples

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program Criteria

ANALYSIS	Criteria	
VOC: <input type="checkbox"/> 6209 <input type="checkbox"/> 624 <input type="checkbox"/> 624.2	Short list 1-5 PHE w/ Analytical Base SHS (8015D by GC-FID) VOCs (8200B by GC-FID) SVOCs PAHs (8200B by GC/MS)	
SVOC: <input type="checkbox"/> ABW <input type="checkbox"/> PAH		
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15		
METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA6 <input type="checkbox"/> PPT3		
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
PCB: <input type="checkbox"/> PEST		
TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		
SAMPLE INFO		
Filtration <input type="checkbox"/> Field <input checked="" type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
56785-01	TG05-MW-1-NAPL	10/12	940	Product	DM
-02	S-240		1020	Product	
-03	S-233		1400	GW	
-04	S-235		1010	Product	
-05	TG05-MW-1		1010	GW	

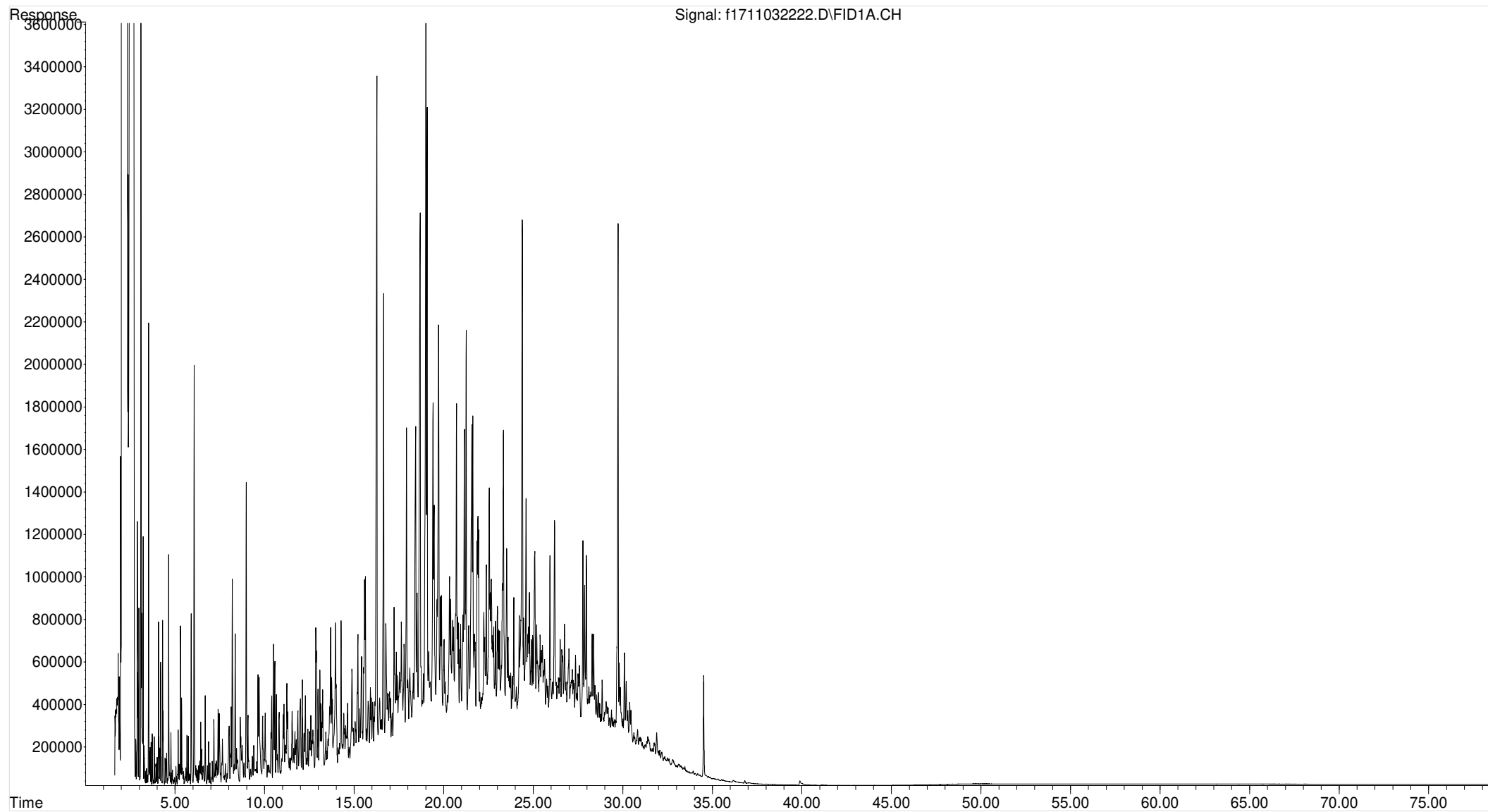
Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO3
G= Glass	D= H2SO4
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= NaHSO4
E= Encore	H= NH4SCN
D= BOD Bottle	I= Ascorbic Acid
	J= NH4Cl
	K= Zn Acetate
	Q= Other

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	10/12/22	STC	10/12/22 15:15
<i>[Signature]</i>	10/12/22 2:10	<i>[Signature]</i>	10/12/22 2:10

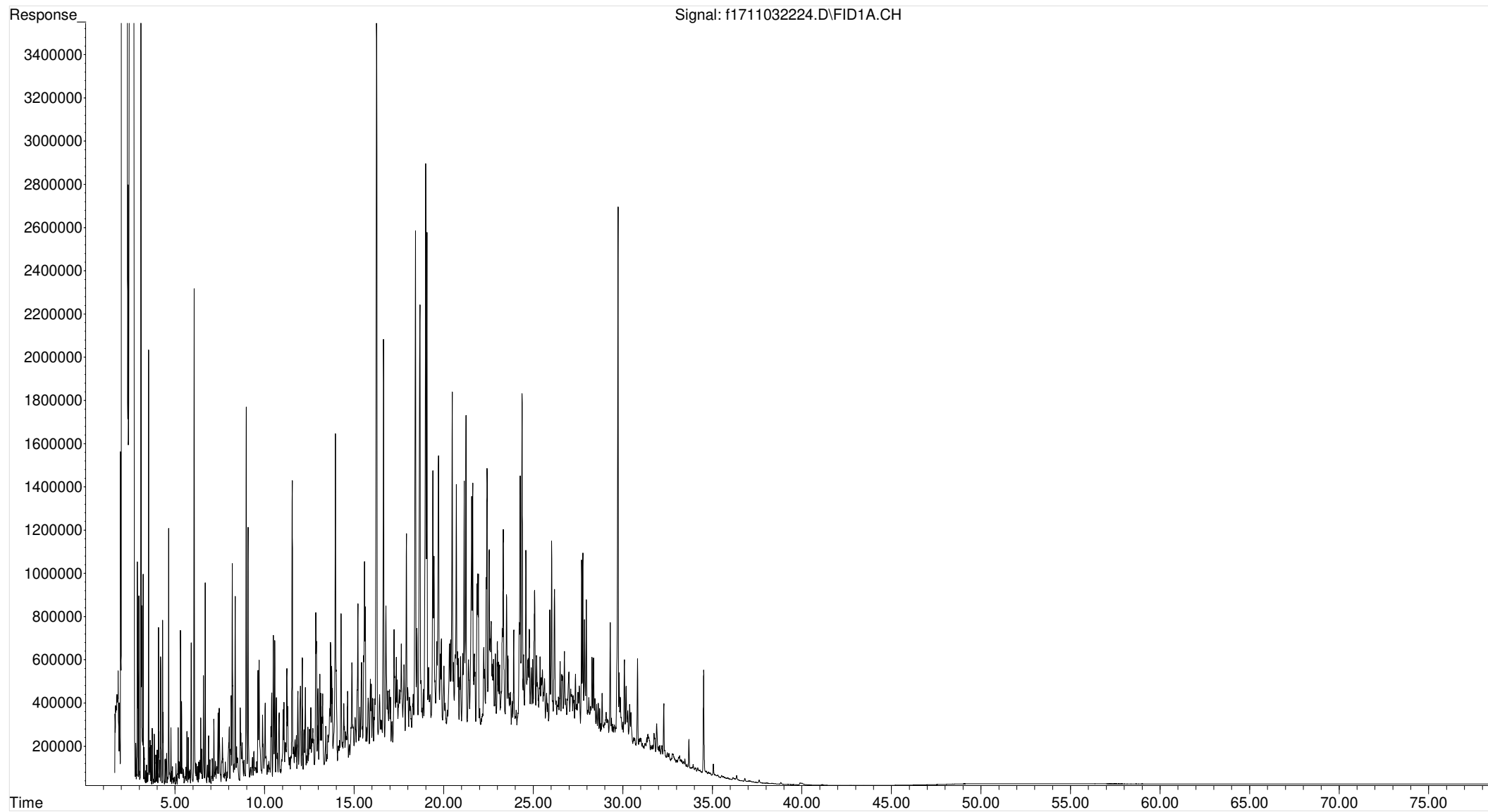
All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
FORM NO: 01-01 (rev. 12-Mar-2012)

GC-FID Chromatogram

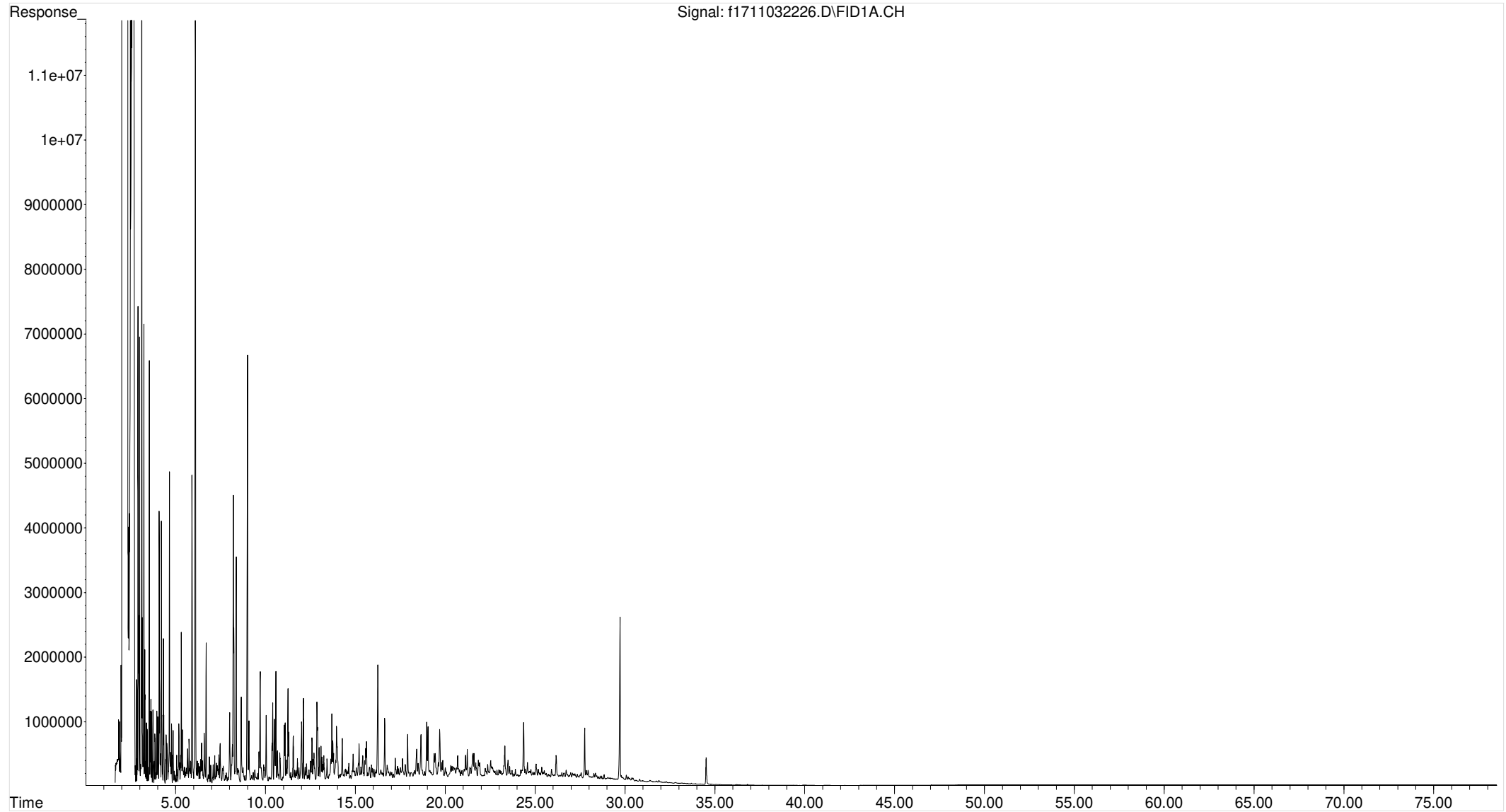
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Acquired : 04 Nov 2022 12:12 am using AcqMethod FID17A.M
Instrument : FID17
Sample Name: 12256785-01,42,,,r2f
Misc Info :
Vial Number: 11



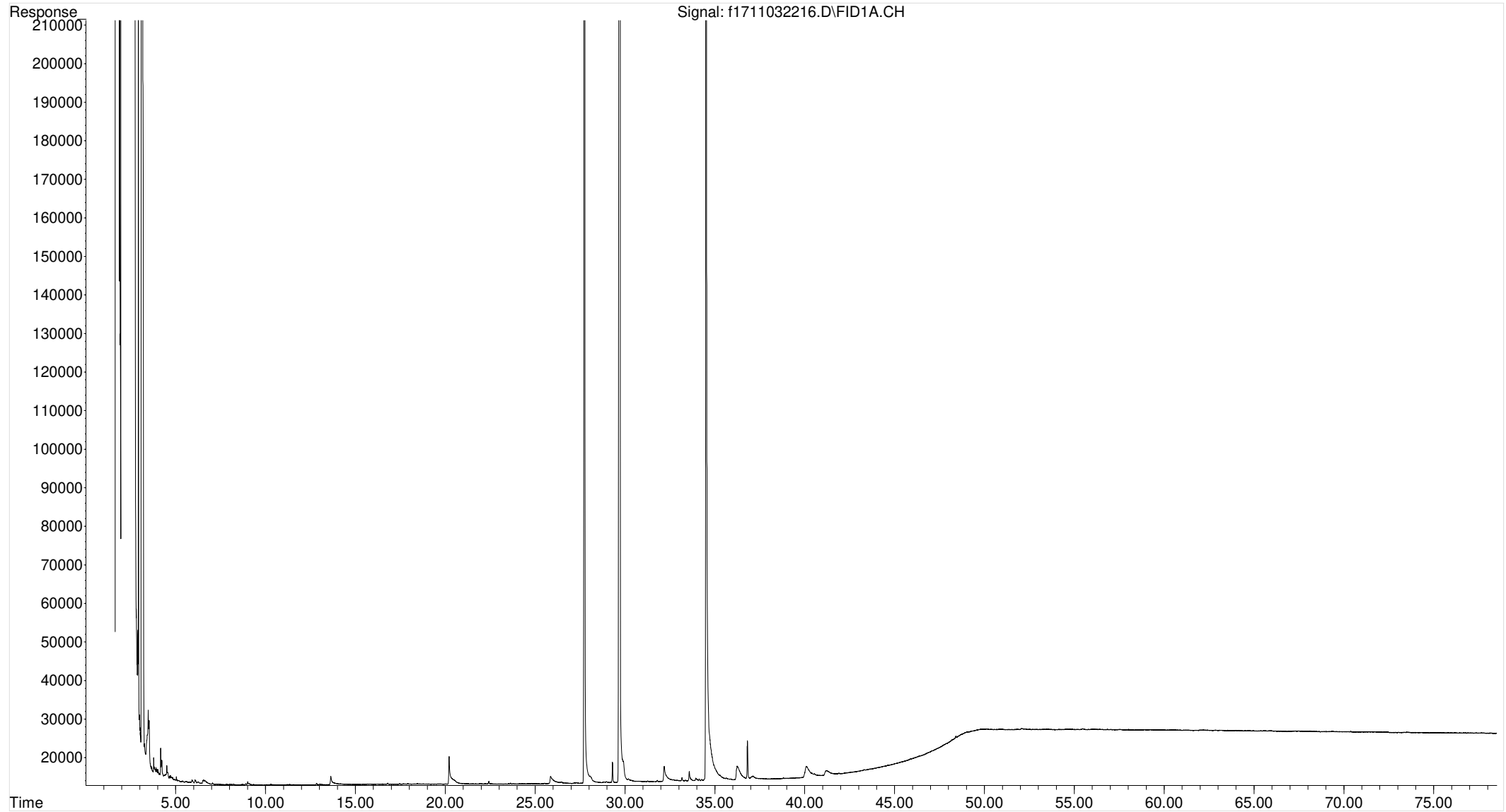
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Operator : FID17:WR
Acquired : 04 Nov 2022 1:41 am using AcqMethod FID17A.M
Instrument : FID17
Sample Name: 12256785-02,42,,,r2f
Misc Info :
Vial Number: 12



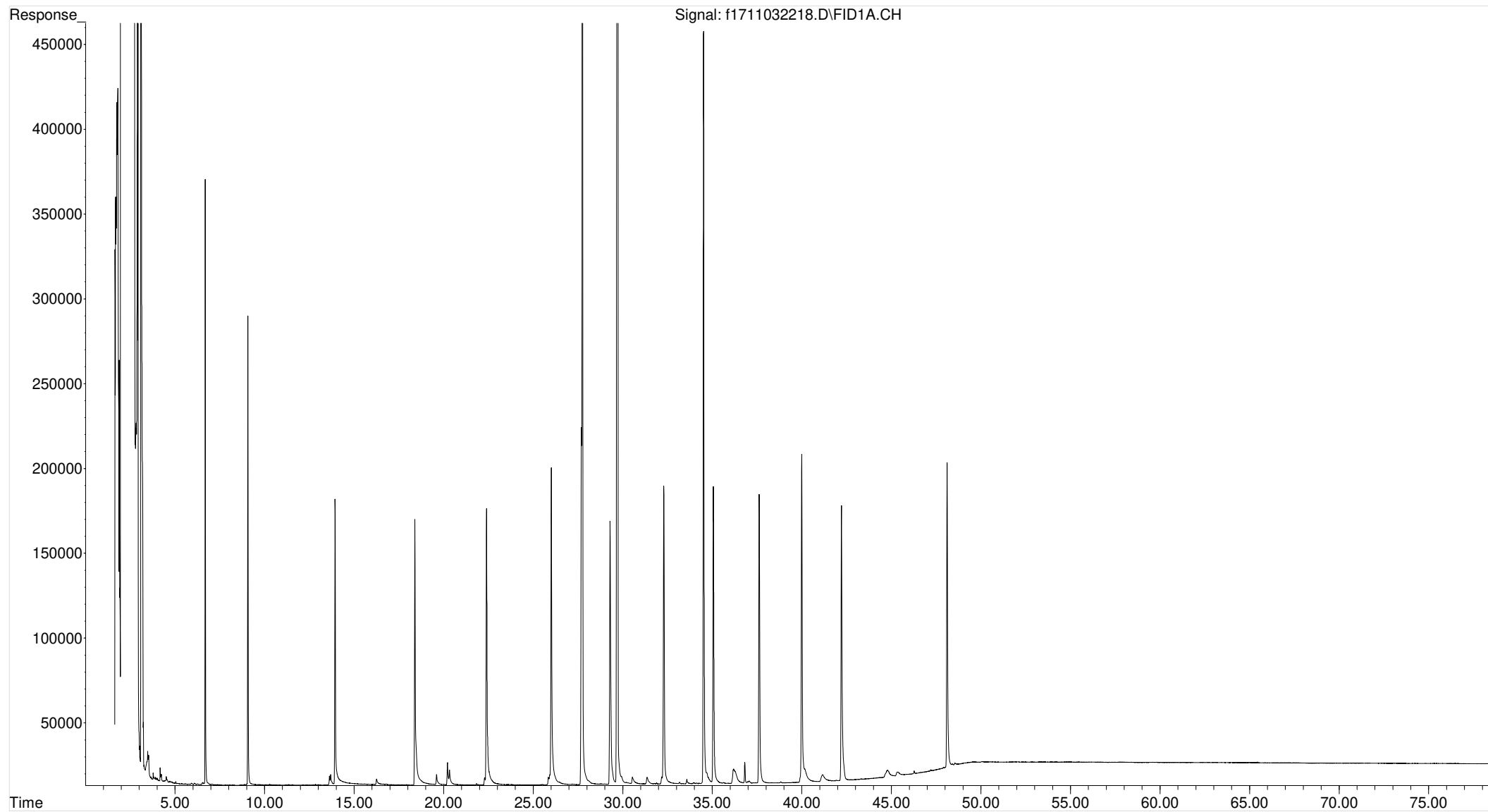
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Instrument : FID17
Sample Name: 12256785-04,42,,,r2f
Misc Info :
Vial Number: 13



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Operator : FID17:WR
Acquired : 03 Nov 2022 7:44 pm using AcqMethod FID17A.M
Instrument : FID17
Sample Name: wgl1707273-1,42,,
Misc Info :
Vial Number: 8

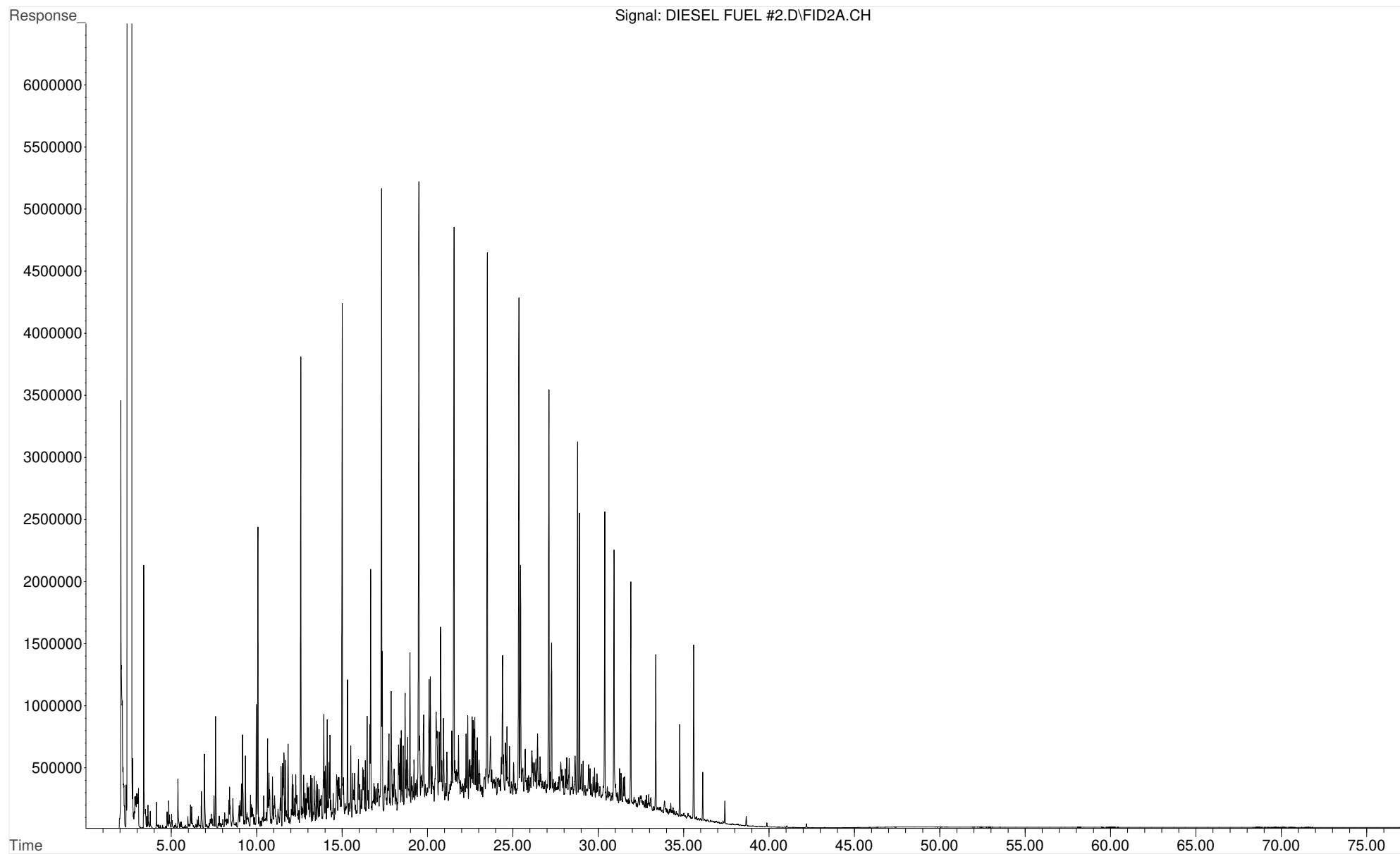


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Operator : FID17:WR
Acquired : 03 Nov 2022 9:13 pm using AcqMethod FID17A.M
Instrument : FID17
Sample Name: wgl1707273-2,42,,
Misc Info :
Vial Number: 9

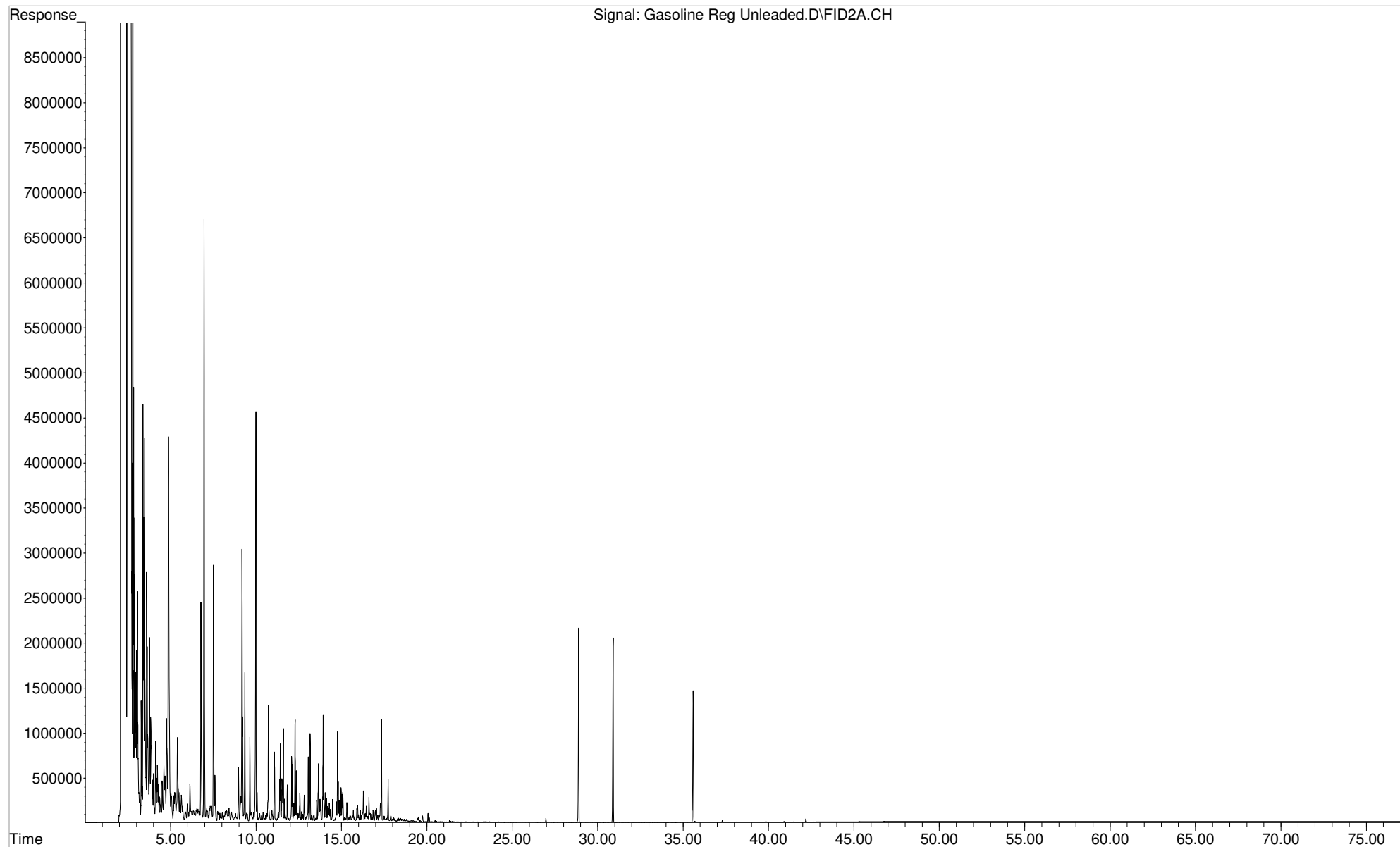


Petroleum Reference Standards

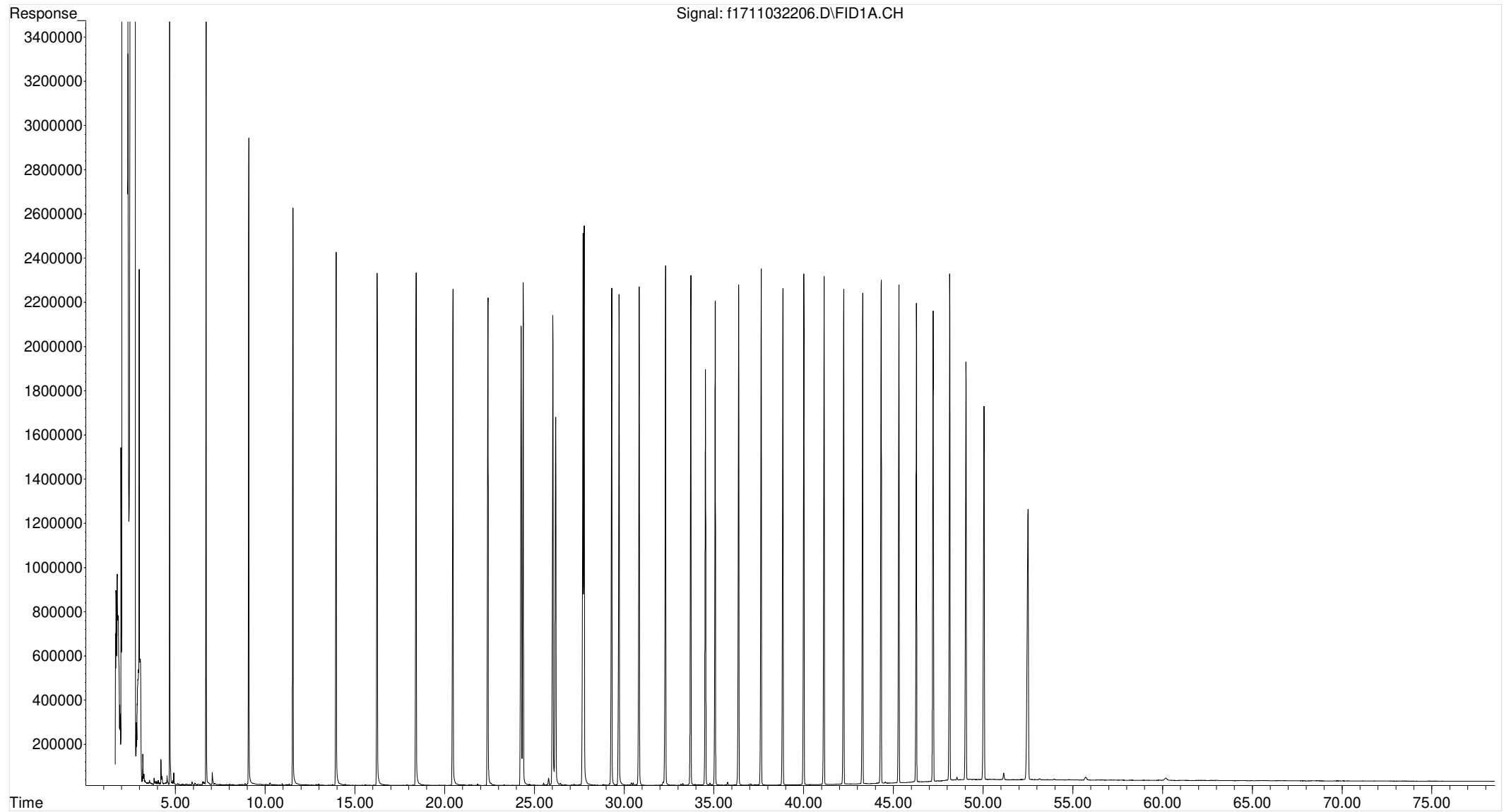
File :O:\FORENSICS\LIBRARY\HYDROCARBON REFERENCE STANDARDS\DIESEL
... FUEL #2.D
Operator : PAH2:AC
Instrument : PAH 2
Acquired : 18 Nov 2011 8:19 pm using AcqMethod FRNC2AF.M
Sample : #2 DIESEL FUEL
Misc Info : F050410A



File :O:\Forensics\Data\LIBRARY\Hydrocarbon Reference Standards\Gasoline Reg Unleaded.D
...
Operator : PAH2:AC
Instrument : PAH 2
Acquired : 19 Nov 2011 8:47 am using AcqMethod FRNC2AF.M
Sample Name: Gasoline Regular Unleaded
Misc Info : F050410I



File :O:\Forensics\Data\FID17\2022\NOV\NOV03\f1711032206.D
Operator : FID17:WR
Acquired : 03 Nov 2022 12:16 pm using AcqMethod FID17A.M
Instrument : FID17
Sample Name: CCV
Misc Info :
Vial Number: 3





ANALYTICAL REPORT

Lab Number:	L2264660
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	11/23/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2264660-01	TG05MW01-GW-221116	WATER	PHILADELPHIA, PA	11/16/22 10:45	11/16/22
L2264660-02	S233-GW-221116	WATER	PHILADELPHIA, PA	11/16/22 12:50	11/16/22
L2264660-03	TB-221116	WATER	PHILADELPHIA, PA	11/16/22 00:00	11/16/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2264660-01 through -03: The Client ID was specified by the client.

L2264660-03: A sample identified as "TB-221116" was received, but not listed on the Chain of Custody. At the client's request, this sample was analyzed.

Microextractables

The WG1713451-2 LCS recovery for 1,2-dibromoethane (122%), associated with L2264660-01 and -02, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

The WG1715394-2 LCS recovery for 1,2-dibromoethane (72%), associated with L2264660-03, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics by SIM

The WG1714205-1 Method Blank, associated with L2264660-01, -01D, -02D, and -02, has a concentration above the reporting limit for Naphthalene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative

Date: 11/23/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-01
 Client ID: TG05MW01-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 10:45
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 11/17/22 20:33
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 11/17/22 15:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-01 D
 Client ID: TG05MW01-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 10:45
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 11/20/22 04:30
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	740		ug/l	50	8.3	50
Benzene	660		ug/l	25	8.0	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
Toluene	6100		ug/l	38	10.	50
Ethylbenzene	1100		ug/l	25	8.4	50
p/m-Xylene	4100		ug/l	50	17.	50
o-Xylene	1500		ug/l	50	20.	50
Xylenes, Total	5600		ug/l	50	17.	50
Isopropylbenzene	46		ug/l	25	9.4	50
1,3,5-Trimethylbenzene	140		ug/l	120	11.	50
1,2,4-Trimethylbenzene	490		ug/l	120	9.6	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-02
 Client ID: S233-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 12:50
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 11/17/22 20:44
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 11/17/22 15:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-02 D
 Client ID: S233-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 12:50
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 11/20/22 04:50
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	50	8.3	50
Benzene	8000		ug/l	25	8.0	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
Toluene	600		ug/l	38	10.	50
Ethylbenzene	1000		ug/l	25	8.4	50
p/m-Xylene	7600		ug/l	50	17.	50
o-Xylene	1500		ug/l	50	20.	50
Xylenes, Total	9100		ug/l	50	17.	50
Isopropylbenzene	15	J	ug/l	25	9.4	50
1,3,5-Trimethylbenzene	410		ug/l	120	11.	50
1,2,4-Trimethylbenzene	1300		ug/l	120	9.6	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-03
 Client ID: TB-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 00:00
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 11/22/22 18:13
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 11/22/22 14:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-03
 Client ID: TB-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 00:00
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 11/22/22 14:16
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 11/17/22 16:38
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 11/17/22 15:17

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-02 Batch: WG1713451-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/19/22 22:23
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1714834-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 11/22/22 16:03
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 11/22/22 14:50

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 03 Batch: WG1715394-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 11/22/22 07:55
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1715777-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2264660

Report Date: 11/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-02 Batch: WG1713451-2									
1,2-Dibromoethane	122	Q	-		80-120	-		20	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2264660

Report Date: 11/23/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1714834-3 WG1714834-4								
Methyl tert butyl ether	82		83		63-130	1		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	99		98		70-130	1		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	88		90		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	105		108		70-130
Dibromofluoromethane	96		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2264660

Report Date: 11/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 03 Batch: WG1715394-2									
1,2-Dibromoethane	72	Q	-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2264660

Project Number: 200.00135.006

Report Date: 11/23/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1715777-3 WG1715777-4								
Methyl tert butyl ether	86		88		63-130	2		20
Benzene	95		100		70-130	5		20
1,2-Dichloroethane	98		100		70-130	2		20
Toluene	95		100		70-130	5		20
Ethylbenzene	94		100		70-130	6		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	92		100		70-130	8		20
1,3,5-Trimethylbenzene	92		100		64-130	8		20
1,2,4-Trimethylbenzene	91		100		70-130	9		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	100		103		70-130
4-Bromofluorobenzene	97		100		70-130
Dibromofluoromethane	98		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-01
 Client ID: TG05MW01-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 10:45
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 11/19/22 13:47
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 11/18/22 19:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	170	E	ug/l	0.10	0.05	1
Fluorene	9.7		ug/l	0.10	0.01	1
Phenanthrene	15		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.57		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.02	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	12	Q	23-120
2-Fluorobiphenyl	81		15-120
4-Terphenyl-d14	83		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-01 D
 Client ID: TG05MW01-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 10:45
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 11/21/22 16:20
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 11/18/22 19:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	180		ug/l	0.50	0.24	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-02
 Client ID: S233-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 12:50
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 11/19/22 14:03
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 11/18/22 19:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	120	E	ug/l	0.10	0.05	1
Fluorene	9.5		ug/l	0.10	0.01	1
Phenanthrene	17		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.84		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.03	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	80		15-120
4-Terphenyl-d14	53		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-02 D
 Client ID: S233-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 12:50
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 11/21/22 16:36
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 11/18/22 19:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	120		ug/l	0.50	0.24	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270E-SIM
 Analytical Date: 11/19/22 12:59
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 11/18/22 19:07

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1714205-1					
Naphthalene	0.18		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	79		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1714205-2 WG1714205-3								
Naphthalene	56		69		40-140	21		40
Fluorene	57		73		40-140	25		40
Phenanthrene	59		76		40-140	25		40
Anthracene	62		79		40-140	24		40
Pyrene	58		74		26-127	24		40
Benzo(a)anthracene	62		81		40-140	27		40
Chrysene	62		79		40-140	24		40
Benzo(b)fluoranthene	70		90		40-140	25		40
Benzo(a)pyrene	66		85		40-140	25		40
Benzo(ghi)perylene	64		88		40-140	32		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	71		90		23-120
2-Fluorobiphenyl	60		75		15-120
4-Terphenyl-d14	63		81		41-149



METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-01
 Client ID: TG05MW01-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 10:45
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.3616	J	ug/l	1.000	0.3430	1	11/21/22 08:37	11/21/22 14:42	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

SAMPLE RESULTS

Lab ID: L2264660-02
 Client ID: S233-GW-221116
 Sample Location: PHILADELPHIA, PA

Date Collected: 11/16/22 12:50
 Date Received: 11/16/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.3836	J	ug/l	1.000	0.3430	1	11/18/22 12:37	11/21/22 17:02	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2264660

Project Number: 200.00135.006

Report Date: 11/23/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 02 Batch: WG1713841-1									
Lead, Dissolved	ND	ug/l	1.000	0.3430	1	11/18/22 12:37	11/21/22 17:28	1,6020B	EGW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1714677-1									
Lead, Dissolved	ND	ug/l	1.000	0.3430	1	11/21/22 08:37	11/21/22 15:11	1,6020B	EGW

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2264660

Report Date: 11/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 02 Batch: WG1713841-2								
Lead, Dissolved	106		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1714677-2								
Lead, Dissolved	103		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MS Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1713841-3 QC Sample: L2264377-04 Client ID: MS Sample												
Lead, Dissolved	1.112	530	573.2	108		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1714677-3 QC Sample: L2264660-01 Client ID: TG05MW01-GW-221116												
Lead, Dissolved	0.3616J	530	558.9	105		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2264660

Report Date: 11/23/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1713841-4 QC Sample: L2264377-04 Client ID: DUP Sample						
Lead, Dissolved	1.112	1.211	ug/l	9		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1714677-4 QC Sample: L2264660-01 Client ID: TG05MW01-GW-221116						
Lead, Dissolved	0.3616J	ND	ug/l	NC		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2264660**Project Number:** 200.00135.006**Report Date:** 11/23/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2264660-01A	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-01B	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-01C	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-01D	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)
L2264660-01E	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)
L2264660-01F	Plastic 250ml unpreserved	A	<2	<2	2.8	Y	Absent		-
L2264660-01G	Amber 250ml unpreserved	A	6	6	2.8	Y	Absent		PA-PAHSIM-LVI(7)
L2264660-01H	Amber 250ml unpreserved	A	6	6	2.8	Y	Absent		PA-PAHSIM-LVI(7)
L2264660-01X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.8	Y	Absent		PB-6020S-PPB(180)
L2264660-02A	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-02B	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-02C	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-02D	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)
L2264660-02E	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)
L2264660-02F	Plastic 250ml unpreserved	A	<2	<2	2.8	Y	Absent		-
L2264660-02G	Amber 250ml unpreserved	A	6	6	2.8	Y	Absent		PA-PAHSIM-LVI(7)
L2264660-02H	Amber 250ml unpreserved	A	6	6	2.8	Y	Absent		PA-PAHSIM-LVI(7)
L2264660-02X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.8	Y	Absent		PB-6020S-PPB(180)
L2264660-03A	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-03B	Vial HCl preserved	A	NA		2.8	Y	Absent		PA-8260(14)
L2264660-03C	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)
L2264660-03D	Vial Na2S2O3 preserved	A	NA		2.8	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

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Report Date: 11/23/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2264660
Report Date: 11/23/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE | OF |



Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1743~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcglobal.com

Westborough, MA Mansfield, MA
 TEL: 508-898-3220 TEL: 508-822-0300
 FAX: 508-898-0100 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-601-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been previously analyzed by Alpha

Date Rec'd in Lab: 11/17/07

ALPHA Job #: L2704060

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEx Add'l Deliverables

Same as Client Info PO #: 3502

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead	ANALYSIS										TOTAL # BOTTLES			
		Date	Time						1	2	3	4	5	6	7	8	9	10		11	12	
016000 -01	TC-05-MW - 01-221116	11/16	1045	G-W	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-02	S-233 - 221116	11/16	1250	G-W	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
016000 -01	TC-05-MW - 01-221116	11/16	1045	G-W	TS
-02	S-233 - 221116	11/16	1250	G-W	TS

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Requested By: *William Schmidt*
 Date/Time: 11/17/07
 0310

Received By: *Paul Maggella*
 Date/Time: 11/16/07 15:15
 11/16/07 15:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha Standard Terms.

Appendix J

MSDS





MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: ULSD 15MV2 B2 NOWINTR

Manufacturer Information:

Philadelphia Energy Solutions
1735 Market Street LL

Philadelphia, Pennsylvania, 19103-7583
pescustomersupport@sunocoinc.com

Product Use:

BIODIESEL FUEL - B2 to B20
Min 40 Centane

Emergency Phone Numbers:

Chemtrec (800) 424-9300 24 Hours

2. HAZARDS IDENTIFICATION

• **EMERGENCY OVERVIEW**

Danger! Combustible liquid and vapor. Vapors may cause flash fire or explosion. Static accumulator. May form an ignitable vapor/air mixture. Harmful if inhaled. May cause headaches and dizziness. Harmful if absorbed through skin. Harmful or fatal if swallowed. Pulmonary aspiration hazard. While ingesting or vomiting, may enter lungs and produce damage. Causes skin irritation. Can cause severe chronic toxicity. Possible cancer hazard.

Hazards Ratings:

Key: 0 = least, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

	<u>Health</u>	<u>Fire</u>	<u>Reactivity</u>	<u>PPI</u>
NFPA	1	2	0	
HMIS	2	2	0	x

• **POTENTIAL HEALTH EFFECTS**

▪ **PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

The following diseases or disorders may be aggravated by exposure to this product: skin, eye, nervous system, respiratory system, lung (asthma-like conditions),

▪ **INHALATION**

Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract. May cause headaches and dizziness. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness and even death).

LC50 (mg/l): No data

LC50 (mg/m3): No data

LC50 (ppm): No data

▪ **SKIN**

May be absorbed through the skin in harmful amounts. Contains a material that has caused skin tumors in laboratory animals. Causes severe skin irritation. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

Draize Skin Score: 6.9 out of 8.0

LD50 (mg/kg): No data

▪ **EYES**

Mildly irritating to the eyes.

▪ **INGESTION**

Harmful or fatal if swallowed. Pulmonary aspiration hazard. While ingesting or vomiting, may enter lungs and produce damage.

LD50 (g/kg): No data

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount (Vol%)
#2 DIESEL HIGHWAY	68476-34-6	80 - 98
Fatty Acid Methyl Ester (Fame)		2 - 20
1,2,4 TRIMETHYLBENZENE	95-63-6	0 - 2
CUMENE	98-82-8	0 - 2
NAPHTHALENE	91-20-3	0 - 2
XYLENE	1330-20-7	0 - 1
ETHYL BENZENE	100-41-4	0 - 1

EXPOSURE GUIDELINES (SEE SECTION 15 FOR ADDITIONAL EXPOSURE LIMITS)

	CAS No.	Governing Body	Exposure Limits		
Limit for the product		ACGIH	TWA	100	mg/m3
CUMENE	98-82-8	ACGIH	TWA	50	ppm
CUMENE	98-82-8	OSHA	TWA	50	ppm
ETHYL BENZENE	100-41-4	ACGIH	TWA	20	ppm
ETHYL BENZENE	100-41-4	OSHA	TWA	100	ppm
NAPHTHALENE	91-20-3	ACGIH	STEL	15	ppm
NAPHTHALENE	91-20-3	ACGIH	TWA	10	ppm
NAPHTHALENE	91-20-3	OSHA	TWA	10	ppm
XYLENE	1330-20-7	ACGIH	STEL	150	ppm
XYLENE	1330-20-7	ACGIH	TWA	100	ppm
XYLENE	1330-20-7	OSHA	TWA	100	ppm
#2 DIESEL HIGHWAY	68476-34-6	ACGIH	TWA	100	mg/m3

4. FIRST AID MEASURES

• **INHALATION**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and continue to monitor. Get immediate medical attention.

• **SKIN**

Wash with soap and water for 20 minutes. Get medical attention if irritation develops or persists. Wash clothing before reuse. Destroy contaminated shoes and other leather products.

• **EYES**

Flush eye with water for 20 minutes. Get medical attention.

• **INGESTION**

If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

- **EXTINGUISHING MEDIA**

Water spray; Regular foam; Dry chemical; Carbon dioxide;

- **FIRE FIGHTING INSTRUCTIONS**

Use water spray to cool fire exposed tanks and containers. Water or foam may cause frothing. Wear structural fire fighting gear. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

- **FLAMMABLE PROPERTIES**

Combustible liquid and vapor. STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers.

	Typical	Minimum	Maximum	Text Result	Units	Method
Flash Point				> 125	F	PMCC
Autoignition Temperature	500				F	N/A
Lower Explosion Limit				No data	%	N/A
Upper Explosion Limit				No data	%	N/A

6. ACCIDENTAL RELEASE MEASURES

Prevent ignition, stop leak and ventilate the area. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Use appropriate personal protective equipment as stated in Section 8 of this MSDS. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container.

7. HANDLING AND STORAGE

- **HANDLING**

Use only in a well-ventilated area. STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers. This liquid may accumulate static electricity even when transferred into properly grounded containers. Bonding and grounding may be insufficient to remove static electricity. Static electricity accumulation may be significantly increased by the presence of small quantities of water. Always bond receiving container to the fill pipe before and during loading, following NFPA-77 and/or API RP 2003 requirements. Automatic gauging devices and other floats in vessels or tanks which contain static accumulating liquids should be electrically bonded to the shell. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep the nozzle in contact with the container throughout the loading process. Do not fill any portable containers in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e. loading this material in tanks or shipping compartments that previously contained middle distillates or similar products). Non-equilibrium conditions may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigating efforts, including bonding and grounding. Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

- **STORAGE**

Keep away from heat, sparks, and flame. Keep container closed when not in use. NFPA class II storage. Flash point is greater than 100 degrees F and less than 140 degrees F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Consult With a Health and Safety Professional for Specific Selections

- **ENGINEERING CONTROLS**

Use with adequate ventilation. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.

- **PERSONAL PROTECTION**

- **EYE PROTECTION**

Splash proof chemical goggles are recommended to protect against the splash of product.

- **GLOVES or HAND PROTECTION**

Protective gloves are recommended when prolonged skin contact cannot be avoided. The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Polyvinyl chloride (PVC); Neoprene; Nitrile; Polyvinyl alcohol; Viton;

- **RESPIRATORY PROTECTION**

Concentration in air determines the level of respiratory protection needed. Use only NIOSH certified respiratory equipment. Respiratory protection is not usually needed unless product is heated or misted.. Half-mask air purifying respirator with organic vapor cartridges is acceptable for exposures to ten (10) times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable for exposures to fifty (50) times the exposure limit. Exposure should not exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit. If exposure is above the IDLH (Immediately Dangerous to Life and Health) or there is the possibility of an uncontrolled release, or exposure levels are unknown, then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA. Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

- **OTHER**

Where splashing is possible, full chemically resistant protective clothing and boots are required. The following materials are acceptable for use as protective clothing: Polyvinyl alcohol (PVA); Polyvinyl chloride (PVC); Neoprene; Nitrile; Viton; Polyurethane; Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Remove contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Property	Typical	Units	Text Result	Reference
Appearance		other	Lt Amber Liquid	
Boiling Point		F		
Bulk Density		lb/gal	No data	
Melting Point		F	No data	
Molecular Weight		g/mole	No data	
Octanol/Water Coefficient		other	No data	
pH		other	No data	
Specific Gravity	0.87	other		
Solubility In Water		wt %	Nil	
Odor		other	Kerosene-like	
Odor Threshold		other	No data	
Vapor Pressure	1.6	mmHg		
Viscosity (F)		other	No data	
Viscosity (C)	1.9	CsT		
% Volatile		wt %	No data	

10. STABILITY AND REACTIVITY

- **STABILITY**

Stable

- **CONDITIONS TO AVOID**

Avoid heat, sparks and open flame.

- **INCOMPATIBILITY**

Cutting oil Strong oxidizers

- **HAZARDOUS DECOMPOSITION PRODUCTS**

Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.

- **HAZARDOUS POLYMERIZATION**

Will not polymerize.

11. ECOLOGICAL INFORMATION

No data available

12. DISPOSAL CONSIDERATIONS

Follow federal, state and local regulations. This material is a RCRA hazardous waste. Do not flush material to drain or storm sewer. Contract to authorized disposal service.

13. TRANSPORT INFORMATION

<u>Governing Body</u>	<u>Mode</u>	<u>Proper Shipping Name</u>
DOT	Ground	Diesel Fuel

<u>Governing Body</u>	<u>Mode</u>	<u>Hazard Class</u>	<u>UN/NA No.</u>	<u>Label</u>
DOT	Ground	3 (Combustible Liquid)	NA1993	

14. REGULATORY INFORMATION

This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372): Maximum Wt%: Naphthalene- CAS Number 91-20-3, 2.5%; %; Ethyl benzene- CAS Number 100-41-4, 1.0%; Cumene- CAS Number 98-82-8, 1.0%; The remaining Sara 313 components listed in Section 14 of the MSDS are less than the reported de minimis levels. This information must be included in all MSDSs that are copied and distributed for this material.

<u>Regulatory List</u>	<u>Component</u>	<u>CAS No.</u>
ACGIH - Occupational Exposure Limits - Carcinogens	#2 DIESEL HIGHWAY	68476-34-6
ACGIH - Occupational Exposure Limits - Carcinogens	ETHYL BENZENE	100-41-4
ACGIH - Occupational Exposure Limits - Carcinogens	NAPHTHALENE	91-20-3
ACGIH - Occupational Exposure Limits - Carcinogens	XYLENE	1330-20-7
ACGIH - Occupational Exposure Limits - TWAs	#2 DIESEL HIGHWAY	68476-34-6
ACGIH - Occupational Exposure Limits - TWAs	CUMENE	98-82-8
ACGIH - Occupational Exposure Limits - TWAs	ETHYL BENZENE	100-41-4
ACGIH - Occupational Exposure Limits - TWAs	NAPHTHALENE	91-20-3
ACGIH - Occupational Exposure Limits - TWAs	XYLENE	1330-20-7
ACGIH - Short Term Exposure Limits	ETHYL BENZENE	100-41-4
ACGIH - Short Term Exposure Limits	NAPHTHALENE	91-20-3
ACGIH - Short Term Exposure Limits	XYLENE	1330-20-7
ACGIH - Skin Absorption Designation	#2 DIESEL HIGHWAY	68476-34-6
ACGIH - Skin Absorption Designation	NAPHTHALENE	91-20-3
CAA (Clean Air Act) - HON Rule - Organic HAPs	CUMENE	98-82-8
CAA (Clean Air Act) - HON Rule - Organic HAPs	ETHYL BENZENE	100-41-4
CAA (Clean Air Act) - HON Rule - Organic HAPs	NAPHTHALENE	91-20-3
CAA (Clean Air Act) - HON Rule - Organic HAPs	XYLENE	1330-20-7
CAA (Clean Air Act) - HON Rule - SOCMl Chemicals	CUMENE	98-82-8
CAA (Clean Air Act) - HON Rule - SOCMl Chemicals	ETHYL BENZENE	100-41-4
CAA (Clean Air Act) - HON Rule - SOCMl Chemicals	NAPHTHALENE	91-20-3
CAA (Clean Air Act) - HON Rule - SOCMl Chemicals	XYLENE	1330-20-7
CAA (Clean Air Act) - VOCs in SOCMl	CUMENE	98-82-8
CAA (Clean Air Act) - VOCs in SOCMl	ETHYL BENZENE	100-41-4
CAA (Clean Air Act) - VOCs in SOCMl	XYLENE	1330-20-7
CAA - 1990 Hazardous Air Pollutants	CUMENE	98-82-8

CAA - 1990 Hazardous Air Pollutants	ETHYL BENZENE	100-41-4
CAA - 1990 Hazardous Air Pollutants	NAPHTHALENE	91-20-3
CAA - 1990 Hazardous Air Pollutants	XYLENE	1330-20-7
California - Proposition 65 - Carcinogens List	ETHYL BENZENE	100-41-4
California - Proposition 65 - Carcinogens List	NAPHTHALENE	91-20-3
Canada - WHMIS - Ingredient Disclosure	1,2,4 TRIMETHYLBENZENE	95-63-6
Canada - WHMIS - Ingredient Disclosure	ETHYL BENZENE	100-41-4
CERCLA/SARA - Haz Substances and their RQs	CUMENE	98-82-8
CERCLA/SARA - Haz Substances and their RQs	ETHYL BENZENE	100-41-4
CERCLA/SARA - Haz Substances and their RQs	NAPHTHALENE	91-20-3
CERCLA/SARA - Haz Substances and their RQs	XYLENE	1330-20-7
CERCLA/SARA - Section 313 - Emission Reporting	1,2,4 TRIMETHYLBENZENE	95-63-6
CERCLA/SARA - Section 313 - Emission Reporting	CUMENE	98-82-8
CERCLA/SARA - Section 313 - Emission Reporting	ETHYL BENZENE	100-41-4
CERCLA/SARA - Section 313 - Emission Reporting	NAPHTHALENE	91-20-3
CERCLA/SARA - Section 313 - Emission Reporting	XYLENE	1330-20-7
CWA (Clean Water Act) - Hazardous Substances	ETHYL BENZENE	100-41-4
CWA (Clean Water Act) - Hazardous Substances	NAPHTHALENE	91-20-3
CWA (Clean Water Act) - Hazardous Substances	XYLENE	1330-20-7
CWA (Clean Water Act) - Priority Pollutants	ETHYL BENZENE	100-41-4
CWA (Clean Water Act) - Priority Pollutants	NAPHTHALENE	91-20-3
CWA (Clean Water Act) - Toxic Pollutants	ETHYL BENZENE	100-41-4
CWA (Clean Water Act) - Toxic Pollutants	NAPHTHALENE	91-20-3
IARC - Group 2B (Possibly carcinogenic to humans)	ETHYL BENZENE	100-41-4
IARC - Group 2B (Possibly carcinogenic to humans)	NAPHTHALENE	91-20-3
IARC - Group 3 (not classifiable)	XYLENE	1330-20-7
Inventory - Australia (AICS)	#2 DIESEL HIGHWAY	68476-34-6
Inventory - Australia (AICS)	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - Australia (AICS)	CUMENE	98-82-8
Inventory - Australia (AICS)	ETHYL BENZENE	100-41-4
Inventory - Australia (AICS)	NAPHTHALENE	91-20-3
Inventory - Australia (AICS)	XYLENE	1330-20-7
Inventory - Canada - Domestic Substances List	#2 DIESEL HIGHWAY	68476-34-6
Inventory - Canada - Domestic Substances List	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - Canada - Domestic Substances List	CUMENE	98-82-8
Inventory - Canada - Domestic Substances List	ETHYL BENZENE	100-41-4
Inventory - Canada - Domestic Substances List	NAPHTHALENE	91-20-3
Inventory - Canada - Domestic Substances List	XYLENE	1330-20-7
Inventory - China	#2 DIESEL HIGHWAY	68476-34-6
Inventory - China	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - China	CUMENE	98-82-8
Inventory - China	ETHYL BENZENE	100-41-4
Inventory - China	NAPHTHALENE	91-20-3
Inventory - China	XYLENE	1330-20-7
Inventory - European EINECS Inventory	#2 DIESEL HIGHWAY	68476-34-6
Inventory - European EINECS Inventory	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - European EINECS Inventory	CUMENE	98-82-8
Inventory - European EINECS Inventory	ETHYL BENZENE	100-41-4
Inventory - European EINECS Inventory	NAPHTHALENE	91-20-3
Inventory - European EINECS Inventory	XYLENE	1330-20-7
Inventory - Japan - (ENCS)	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - Japan - (ENCS)	CUMENE	98-82-8
Inventory - Japan - (ENCS)	ETHYL BENZENE	100-41-4
Inventory - Japan - (ENCS)	NAPHTHALENE	91-20-3
Inventory - Japan - (ENCS)	XYLENE	1330-20-7
Inventory - Korea - Existing and Evaluated	#2 DIESEL HIGHWAY	68476-34-6
Inventory - Korea - Existing and Evaluated	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - Korea - Existing and Evaluated	CUMENE	98-82-8
Inventory - Korea - Existing and Evaluated	ETHYL BENZENE	100-41-4
Inventory - Korea - Existing and Evaluated	NAPHTHALENE	91-20-3
Inventory - Korea - Existing and Evaluated	XYLENE	1330-20-7

Inventory - New Zealand	#2 DIESEL HIGHWAY	68476-34-6
Inventory - New Zealand	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - New Zealand	CUMENE	98-82-8
Inventory - New Zealand	ETHYL BENZENE	100-41-4
Inventory - New Zealand	NAPHTHALENE	91-20-3
Inventory - New Zealand	XYLENE	1330-20-7
Inventory - Philippines Inventory (PICCS)	#2 DIESEL HIGHWAY	68476-34-6
Inventory - Philippines Inventory (PICCS)	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - Philippines Inventory (PICCS)	CUMENE	98-82-8
Inventory - Philippines Inventory (PICCS)	ETHYL BENZENE	100-41-4
Inventory - Philippines Inventory (PICCS)	NAPHTHALENE	91-20-3
Inventory - Philippines Inventory (PICCS)	XYLENE	1330-20-7
Inventory - TSCA - Sect. 8(b) Inventory	#2 DIESEL HIGHWAY	68476-34-6
Inventory - TSCA - Sect. 8(b) Inventory	1,2,4 TRIMETHYLBENZENE	95-63-6
Inventory - TSCA - Sect. 8(b) Inventory	CUMENE	98-82-8
Inventory - TSCA - Sect. 8(b) Inventory	ETHYL BENZENE	100-41-4
Inventory - TSCA - Sect. 8(b) Inventory	NAPHTHALENE	91-20-3
Inventory - TSCA - Sect. 8(b) Inventory	XYLENE	1330-20-7
Massachusetts - Right To Know List	1,2,4 TRIMETHYLBENZENE	95-63-6
Massachusetts - Right To Know List	CUMENE	98-82-8
Massachusetts - Right To Know List	ETHYL BENZENE	100-41-4
Massachusetts - Right To Know List	NAPHTHALENE	91-20-3
Massachusetts - Right To Know List	XYLENE	1330-20-7
New Jersey - Department of Health RTK List	#2 DIESEL HIGHWAY	68476-34-6
New Jersey - Department of Health RTK List	1,2,4 TRIMETHYLBENZENE	95-63-6
New Jersey - Department of Health RTK List	CUMENE	98-82-8
New Jersey - Department of Health RTK List	ETHYL BENZENE	100-41-4
New Jersey - Department of Health RTK List	NAPHTHALENE	91-20-3
New Jersey - Department of Health RTK List	XYLENE	1330-20-7
New Jersey - Env Hazardous Substances List	#2 DIESEL HIGHWAY	68476-34-6
New Jersey - Env Hazardous Substances List	1,2,4 TRIMETHYLBENZENE	95-63-6
New Jersey - Env Hazardous Substances List	CUMENE	98-82-8
New Jersey - Env Hazardous Substances List	ETHYL BENZENE	100-41-4
New Jersey - Env Hazardous Substances List	NAPHTHALENE	91-20-3
New Jersey - Env Hazardous Substances List	XYLENE	1330-20-7
New Jersey - Special Hazardous Substances	CUMENE	98-82-8
New Jersey - Special Hazardous Substances	ETHYL BENZENE	100-41-4
New Jersey - Special Hazardous Substances	NAPHTHALENE	91-20-3
New Jersey - Special Hazardous Substances	XYLENE	1330-20-7
NTP - Report on Carcinogens - Suspect Carcinogens	NAPHTHALENE	91-20-3
OSHA - Final PELs - Skin Notations	CUMENE	98-82-8
OSHA - Final PELs - Time Weighted Averages	CUMENE	98-82-8
OSHA - Final PELs - Time Weighted Averages	ETHYL BENZENE	100-41-4
OSHA - Final PELs - Time Weighted Averages	NAPHTHALENE	91-20-3
OSHA - Final PELs - Time Weighted Averages	XYLENE	1330-20-7
OSHA - Hazard Communication Carcinogens	ETHYL BENZENE	100-41-4
OSHA - Hazard Communication Carcinogens	NAPHTHALENE	91-20-3
Pennsylvania - RTK (Right to Know) List	1,2,4 TRIMETHYLBENZENE	95-63-6
Pennsylvania - RTK (Right to Know) List	CUMENE	98-82-8
Pennsylvania - RTK (Right to Know) List	ETHYL BENZENE	100-41-4
Pennsylvania - RTK (Right to Know) List	NAPHTHALENE	91-20-3
Pennsylvania - RTK (Right to Know) List	XYLENE	1330-20-7
Pennsylvania - RTK - Environmental Hazard List	1,2,4 TRIMETHYLBENZENE	95-63-6
Pennsylvania - RTK - Environmental Hazard List	CUMENE	98-82-8
Pennsylvania - RTK - Environmental Hazard List	ETHYL BENZENE	100-41-4
Pennsylvania - RTK - Environmental Hazard List	NAPHTHALENE	91-20-3
Pennsylvania - RTK - Environmental Hazard List	XYLENE	1330-20-7
TSCA - Sect. 12(b) - Export Notification	NAPHTHALENE	91-20-3
TSCA - Section 4 - Chemical Test Rules	NAPHTHALENE	91-20-3
U.S. - DOT - Hazardous Substances and RQs (App A)	CUMENE	98-82-8
U.S. - DOT - Hazardous Substances and RQs (App A)	ETHYL BENZENE	100-41-4

Title III Classifications Sections 311,312:

- Acute: **YES**
- Chronic: **YES**
- Fire: **YES**
- Reactivity: **NO**
- Sudden Release of Pressure: **NO**

15. OTHER INFORMATION

Follow all MSDS/label precautions even after container is emptied because it may retain product residue. Following injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss. Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner or properly disposed of. COMPONENT TOXICITY: Overexposure to naphthalene, a minor component of this product, may cause skin, eye and respiratory tract irritation, anemia, loss of vision, nervous system effects and kidney and thymus damage. Also, exposure to naphthalene has produced "respiratory tract" tumors in laboratory animals. Ethylbenzene, a component of this product, has been designated by the International Agency for Research on Cancer as "possibly carcinogenic to humans", based on increased tumor incidence in laboratory animals. Overexposure may lead to nervous system effects, including drowsiness, dizziness, nausea, headaches, paralysis, loss of consciousness and even death. Repeated overexposure has caused a hearing loss in laboratory animals. Cumene may be harmful or fatal if swallowed. Pulmonary aspiration hazard. After ingestion, may enter lungs and cause damage. May cause respiratory irritation, fluid in the lungs and lung damage. May be irritating to the skin and eyes. May cause nervous system effects, including drowsiness, dizziness, coma and even death. Overexposure has caused kidney, nose, and liver damage in laboratory animals. Following inhalation exposure, an increased tumor incidence has been observed in experimental animals. The significance of this finding to human health is presently unknown.