

Site Characterization Report - Tank Group 02

Former Philadelphia Energy Solutions Refinery
3144 West Passyunk Avenue, Philadelphia, Pennsylvania
Incident No. 56377

Prepared for

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Acronyms and Abbreviations

§	Section
25 PA Code	Title 25 Pennsylvania Code
Act 2	Pennsylvania Land Recycling and Environmental Remediation Standards Act
Act 32	Storage Tank and Spill Prevention Act
AOI	Area of Interest
AOI 1 RIR	<i>Remedial Investigation Report, Area of Interest 1</i>
AOI 2 RIR	<i>Remedial Investigation Report, Area of Interest 2</i>
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
JD2	JD2 Environmental, Inc.
LNAPL	light non-aqueous phase liquid
max	maximum
mg/kg	milligrams per kilogram
MSC	medium-specific concentrations
MTBE	methyl tert-butyl ether
Non-Res	Non-Residential
Non-Res Soil DC	Non-Residential Soil Direct Contact
Non-Res UA S-GW	Non-Residential Used Aquifer Soil-to-Groundwater
South Yard	Point Breeze Refinery South Yard
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
PID	photoionization detector
PRM	Potomac-Raritan-Magothy
RCRA	Resource Conservation and Recovery Act
Report	<i>Site Characterization Report</i>
Site	Tank Group 02 located within the former Philadelphia Energy Solutions Refinery facility
SHS	Statewide Health Standard
South Yard	Point Breeze Refinery South Yard
SVOC	semi-volatile organic compound



Terraphase	Terraphase Engineering, Inc.
TMB	trimethylbenzene
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
Work Plan	<i>Aboveground Storage Tank Closure Work Plan</i>



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 this report entitled *Site Characterization Report – Tank Group 02, Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated April 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

April 7, 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 02 (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 (PA) Code (25 PA Code) Chapter 245 (Subchapter D), and Terraphase’s 2021 *Aboveground Storage Tank Closure Work Plan* (Work Plan) 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.

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

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

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

¹ Evergreen Resources Management Operations, a series of Evergreen, is managing the legacy remedial work for Philadelphia Refinery Operations, a series of Evergreen and Sunoco (R&M), LLC. For clarity, 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 effective April 19, 2021, and Evergreen shall be referred to collectively as “Evergreen” in this Report.



The Site (**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 and oversight by the PADEP and the United States Environmental Protection Agency (USEPA; eFACTS PF Nos. 778374 and 778376). In its associated documentation, Evergreen has identified the Site within the South Yard as Areas of Interest (AOIs) 1 and 2. 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 on-site ASTs. It also demonstrates that adequate characterization has been performed to evaluate whether remedial action is warranted or whether attainment of the Statewide Health Standard (SHS) can be achieved.

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 and Section 4 discusses the tank infrastructure and removal. Sections 5 and 6 discuss the Site Assessment and Site Characterization, respectively. Section 7 provides an ecological screening evaluation, and a summary of this Report and its conclusions are presented in Section 8.



2 Site Setting

The Facility, a former 1,300-acre refinery, is currently undergoing decommissioning to support redevelopment. The Site² is 40 acres in size and is located within the South Yard, part of which includes areas referred to as AOIs 1 and 2 by Evergreen as part of their Consent Order and Agreement. The Site is located south of Passyunk Avenue, between South 26th Street and Schuylkill Avenue. Prior to demolition, the Site consisted of four separate areas containing tanks. 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 cut through portions of the Site, and the tank foundations themselves, the area is not covered by hardscape.

The ASTs addressed in this Report are listed in **Table 1**. Eleven other ASTs were previously located within the Site but were previously decommissioned and closed.

Figure 3 provides a layout of the Site.

2.1 Operational History/Usage of the Tanks

The Facility operated as a petroleum refinery from 1860 until 2019, when it ceased operations. The demolition and decommissioning of the subject ASTs began in December 2020. Prior to demolition, the primary products held within these tanks were ethanol (PB 26), gasoline components (PB 27, PB 37, and PB 128), alkylate (PB 28), heavy reformat (PB 29 and PB 129), gasoline (PB 33, PB 34, PB 35, PB 36, PB 38, PB 39, and PB 40), no. 2 fuel oil (PB 42), recovered oil (PB 204), 15MV1 distillate (PB 43, PB 83, PB 84, and PB 85), phosphoric acid (PB 7316), methanol (PB 14V 304 and PB 3V 37), and sodium hypochlorite (PB 89A). 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 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 24 feet above mean sea level.³

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,

² Tank Group 02 consists of a tank farm referred to by the facility as the No. 1 Tank Farm, as well as a few smaller tanks to the west.

³ North American Vertical Datum of 1988



silt, and clay which drape over crystalline igneous and metamorphic rocks. In general, the resulting sediments are approximately 250 feet thick along the Delaware River. These sediments unconformably 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 water table, as a result of their relatively young geologic age and position along the Schuylkill River (tributaries and creeks). Below the Holocene deposits is Pleistocene glacial outwash, 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 property 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 generally first encountered at the Facility at a depth approximately 15 to 25 feet below ground surface (bgs; Stantec 2016a). **Appendix A** provides select figures from the *Remedial Investigation Report, Area of Interest 1* (AOI 1 RIR; Stantec 2016a) and *Remedial Investigation Report, Area of Interest 2* (AOI 2 RIR; Langan 2017) for reference, including Figure 5-1 which provides a detailed cross section 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 feet, although certain Site Characterization borings were advanced to a maximum depth of 15 feet. Except for the borings installed along the berm in the southwest portion of the Site, anthropogenic fill ranging from 4 to 14 feet thick was encountered in each of the soil borings. Soil beneath the fill layer generally consists of brown-gray sand, clay, and silt.

Groundwater was not encountered during the Site Characterization. Historically, unconfined aquifer groundwater has been first encountered at the Site at a depth of approximately 15 to 25 feet bgs (Stantec 2016a). Perched groundwater was also noted to be present in the anthropogenic fill layers at the Facility, causing mounding and irregular depressions. Although groundwater was not encountered during PESRM Site Assessment and Characterization, groundwater has historically been interpreted to flow to the south/southeast toward the convergence of the Delaware and Schuylkill rivers. The 26th Street North Remediation System also draws groundwater flow in the easternmost portion of the Site.



2.5 Known Past Releases to the Environment

The presence of chemicals in soil above applicable Medium-Specific Concentrations (MSCs) at the Site 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.

As recognized by PADEP (2018), much of the Facility is covered by anthropogenic fill with some of the fill areas exhibiting fill material as deep as 50 feet bgs. Because of this, the presence of some metals and semi-volatile organic compounds (SVOCs) may not be a result of release(s) from the Facility and vertical/horizontal delineation to MSCs may be difficult.

The AOI 1 RIR (Stantec 2016a) and AOI 2 RIR (Langan 2017), prepared on behalf of Evergreen, note historical investigations relating to releases of petroleum products in the vicinity of the Site. In some cases, these releases likely resulted in contamination to groundwater (including light non-aqueous phase liquid [LNAPL]) that is present or has migrated to within the bounds of the Site. These releases are summarized in Section 2.6.2.

The AOI 1 and AOI 2 RIRs identified six potential historical releases from ASTs in the area of the Site (Incident Nos. 45896 [PB 36], 45948 [PB 30], 45964 [PB 38], 45971 [PB 39], 45967 [PB 128], and 6095 [PB 129]), as well as historical releases regulated under Act 2 in the vicinity of tanks PB 42 and PB 129. According to PADEP (2016a, 2017a), the Incidents Nos. have been closed. In addition, the AOI 1 RIR describes historical activities immediately north of PB 29 and PB 30, where a release of a xylene-based additive, DCI-6A 80/20, from AST PB 101 was identified in 2007 (Incident No. 38360). Sampling conducted in the area of the 2007 release around PB 101 identified elevated concentrations of ethylbenzene and xylenes, and approximately 30,000 pounds of contaminated soil were excavated and removed for off-site disposal (Stantec 2016b).

The AOI 1 RIR also partially describes historical releases from the Belmont Terminal property immediately adjacent to the north of the Facility near the Site. Releases from this property are likely to have resulted in both LNAPL and dissolved-phase groundwater impacts in the area. Multiple groundwater remediation and recovery systems have been historically used at Belmont Terminal to address the identified LNAPL and groundwater contamination.

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 the Site.

2.6.1 Soil

Historical on-site sampling has included surface (0–2 feet bgs) and subsurface (greater than 2 feet bgs) soil samples that were analyzed for specific volatile organic compounds (VOCs), SVOCs, and metals. As discussed in Section 1.5 of the AOI 1 and AOI 2 RIRs, the lists of constituents of concern (COC) 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 the 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:

- Lead⁵ at concentrations in surface soil greater than the Non-Residential (Non-Res) Soil Direct Contact (Non-Res Soil DC) MSC for surface soil;
- Naphthalene in subsurface soil at concentrations greater than the Non-Res Soil DC MSCs for subsurface soil;
- Benzene, ethylbenzene, 1,2,4-trimethylbenzene (1,2,4-TMB), 1,3,5-trimethylbenzene (1,3,5-TMB), naphthalene, and lead in surface soil at concentrations greater than the Non-residential Used Aquifer Soil-to-Groundwater (Non-Res UA S-GW) MSCs; and
- Benzene, ethylbenzene, 1,2,4-TMB, 1,3,5-TMB, methyl tert-butyl ether (MTBE), naphthalene, and lead in subsurface soil at concentrations greater than the Non-Res UA S-GW MSCs.

Table 3 summarizes additional information for these soil sampling results including frequency of detections, range of detected concentrations, and ratios of the maximum detected concentrations to the MSCs. **Figures 4a** and **4b** present the spatial distribution of 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 201 (lead), PB 30 (lead), and PB 44 (lead) and currently assessed tanks PB 27 (benzene), PB 38 (1,3,5-TMB, naphthalene), and PB 83 (lead). Historical sampling has also identified concentrations of COCs exceeding Non-Res MSCs in subsurface soil in the vicinity of previously-closed tanks PB 201 (benzene, MTBE), PB 30 (benzene, lead), and PB 44 (lead) and currently assessed tanks PB 27 (benzene), PB 33 (benzene), PB 36 (benzene), PB 38 (benzene), PB 39 (benzene), PB 128 (lead, benzene), and PB 129 (naphthalene) or their associated piping.

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

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 less than or equal to 2,500 milligrams per kilogram [mg/kg]) Soil-to-Groundwater Protection MSCs.

⁵ In 2015 Langan, on behalf of Evergreen, submitted a *Human Health Risk Assessment Report* to establish a site-specific standard for lead in soil at the facility, the Belmont Terminal, and the SPMT Marcus Hook Industrial Complex. The *Human Health Risk Assessment Report* was approved by the PADEP in a letter dated May 6, 2015, establishing a site-specific standard 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.



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.

As summarized in Section 0, the presence of certain COCs in soil within the Site area above applicable MSCs may be related to historical conditions or releases not related to the Site tanks and will be subject to additional assessment and possibly remedial action separately under Act 2. With consideration for the closure of the on-site 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.

2.6.2 Groundwater

More than 50 groundwater monitoring or recovery wells have been installed within and near the Site as part of historical environmental sampling at the Facility. Based upon the available groundwater sampling data from these wells, 33 chemicals have been identified in groundwater within and in the vicinity of Tank Group 02 at concentrations greater than the Non-residential Used Aquifer MSCs including 13 VOCs⁶, 15 SVOCs⁷, and five metals⁸. As discussed in the AOI 1 and AOI 2 RIRs, of the site-related COCs identified in groundwater, benzene and 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.

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 the associated with historical releases (e.g., pre-2007).

Figures from the AOI 1 and AOI 2 RIRs show the distribution of benzene and other COCs in groundwater the Site. For expediency, copies of Figures 6-3 and 10-2 through 10-6 from the AOI 1 RIR and **Figures 12a** and **12b** of the AOI 2 RIR are included in **Appendix A**. Each have been amended to identify the location of the Site.

As shown on Figures 10-2 through 10-6 of the AOI 1 RIR, a dissolved-phase contamination plume exists beneath the eastern portion of the Site. As presented in Appendix C of the AOI 1 RIR, 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 the Site have decreased since 2004/2005.

⁶ 1,2-Dibromoethane, 1,2-dichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, acrylonitrile, benzene, cis-1,2-dichloroethene, ethyl benzene, MTBE, tetrachloroethene, toluene, vinyl chloride, and xylenes (total)

⁷ 2-Methylnaphthalene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-Ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene

⁸ Arsenic, chromium (total), cobalt, lead, and manganese



Since 1988, LNAPL plumes have also been identified near the Site as shown on Figure 6-3 of the AOI 1 RIR and Figure 14 of the AOI 2 RIR. LNAPL has consisted of light, middle, and heavy petroleum distillates.

As part of remedial action, groundwater and LNAPL recovery systems have been installed by Evergreen/Sunoco to the north, east, and west of the Site. The most relevant of these to groundwater quality at the Site is the 26th Street North Remediation System, which began operating in 1996 and was expanded in 2003. The sewer system collects groundwater and LNAPL. Over 57,000 gallons of LNAPL has been remediated by the system as of 2016. Three systems have been used by Evergreen/Sunoco to remediate contamination at the Belmont Terminal Property to the north of the Site. Additionally, a remediation system has operated to the west of the Site near the Schuylkill River. These systems have been effective in reducing groundwater impacts and preventing the migration of contaminated groundwater off-site.

Fewer wells are located in the western portion of the Site; however, sampling of these wells have indicated limited areas of LNAPL and dissolved phase groundwater contamination in the unconfined aquifer.

Groundwater contamination in the lower aquifer has been identified in the eastern portion of the Site. Sampling of lower aquifer wells conducted in 2015 in the western portion of the Site did not identify concentrations of COCs at levels greater than the Non-Res MSCs.

With consideration for the closure of the ASTs, these historical sampling results have been considered in evaluating Site Assessment and Site Characterization data. Based upon the historical groundwater data upgradient, within and downgradient of the Site, as illustrated on the select figures included in **Appendix A** (i.e., 10-2 through 10-5), the aerial extent and level of dissolved phase contamination in the area has been reduced as a result of the remedial efforts implemented in the area of the Site. Figures 10-2 and 10-4 illustrate more recent (2014, 2015 timeframe) extent and level of benzene and MTBE concentrations in unconfined groundwater. As shown, areas within the Tank Group as of 2014/2015, still appeared to indicate elevated concentrations in the unconfined aquifer (i.e., immediately north of PB 120, north of PB 28, at and north of PB 26). Taking into consideration the levels which were present in the 2004/2005 timeframe, these remaining disconnected areas of elevated concentrations are residual concentrations remaining as of 2014/2015 following remedial action. They do not represent evidence that soil identified during Site Assessment/Characterization, with concentrations greater than Non-Res UA S-GW, is an on-going material source to the identified groundwater contamination within the area of the Site. The sources of groundwater contamination appear to be related to the historically identified LNAPL plumes and other upgradient releases detailed in the AOI 1 and AOI 2 RIRs (e.g., from the Belmont Terminal) as illustrated on the select Figures included in **Appendix A**.



3 Selection of Standards

This section discusses planned land and groundwater use at the Site. It also discusses the standard selected by PESRM for the Site 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 the Site 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 the Site 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.

The vapor intrusion exposure pathway is currently incomplete as there are no occupied structures in the area of the Site. As part of its redevelopment planning, PESRM plans to assess potential vapor intrusion exposure in areas where occupied buildings are planned. That 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. Because there is no current vapor intrusion exposure in this area, and because this future assessment is planned, vapor intrusion exposure in the area of the Site is not a current or reasonably expected future exposure scenario.

The water table aquifer is not used for a municipal or nearby communal potable water supply and future potable use of the water table aquifer is not reasonably expected. The PRM aquifer system is used as a water supply in New Jersey. As discussed in the AOI 1 RIR (Stantec 2016a), the aquifers of that system, chiefly the lower sand unit, can receive recharge via vertical leakage through confining units and direct recharge from younger deposits along their subcrop area in south Philadelphia, which includes portions of the Site. Evergreen is in the process of evaluating the potential for migration of dissolved phase groundwater contamination into and along the lower aquifer.



3.2 Selected Standard

PESRM has selected the SHS for the Site. Based upon current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site, the following MSCs have been used to support the Site Assessment for applicable on-site ASTs,⁹ and the subsequent Site Characterization for ASTs with the following identified releases:

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

⁹ Specifically, PB 3V 37 (PA DEP No. 014A), PB 7316 (PADEP No. 071A), PB 14V 304 (PADEP No. 061A), PB 89A (PADEP No. 089A), PB 26 (PADEP No. 001A), PB 27 (PADEP No. 019A), PB 28 (PADEP No. 020A), PB 29 (PADEP No. 021A), PB 33 (PADEP No. 002A), PB 34 (PADEP No. 022A), PB 35 (PADEP No. 023A), PB 36 (PADEP No. 087A), PB 37 (PADEP No. 024A), PB 38 (PADEP No. 003A), PB 39 (PADEP No. 025A), PB 40 (PADEP No. 026A), PB 42 (PADEP No. 027A), PB 43 (PADEP No. 028A), PB 83 (PADEP No. 004A), PB 84 (PADEP No. 029A), PB 85 (PADEP No. 030A), PB 128 (PADEP No. 032A), PB 129 (PADEP No. 033A), and PB 204 (PADEP No. 041A).



4 Tank Infrastructure and Removal

In accordance with the Work Plan, Northstar Contracting Group, Inc. and its subcontractor, JD2 Environmental, Inc. (JD2; a PADEP-certified Aboveground Field Constructed Storage Tank System Removal contractor), 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 ASTs; and (5) removal of ancillary equipment and piping. The demolition of the following ASTs began in December 2020 and was completed in August 2021, with the exception of double bottoms:

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

During the removal, it was determined that tanks PB 28, PB 34, PB 35, PB 36, PB 37, PB 43, PB 83, PB 84, PB 85, PB 128, and PB 129 had double bottoms. PESRM retained ENTACT to remove the double bottoms at all 11 tanks. Removal was completed in January 2022, overseen by JD2.

JD2 identified evidence of releases to the environment during the AST removal in the vicinity of tank PB 83 (i.e., the identification of free product). PADEP was notified by JD2 via telephone of this release on June 10, 2021. Interim Remedial Actions were also implemented, including the recovery of water with sheen and free product. Based on Site Assessment sampling results from across the Site, five additional notifications of release were reported by Terraphase to PADEP for the Site. On behalf of PESRM, JD2 submitted PADEP the required tank registration amendments to the PADEP; see copies provided as **Appendix D**.



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 Probe Lease.

As discussed in the Work Plan and in Section 1 of this Report, when no visual evidence of a release to the environment was identified during Category 1 AST removal, no further action was required. When no evidence of a release to the environment was identified during Category 2 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. Petroleum sheen (on pooled water) and visibly contaminated soil were observed beneath the northwest tank wall of PB 83. This tank was re-classified as Category 3 and the investigation process immediately moved to the Site Characterization sampling described in Section 6. Groundwater was not encountered during Site Assessment. Sampling was conducted during multiple mobilizations as the tanks were being demolished and the ground became available for sampling. The first mobilization was on June 7, 2021, and the last mobilization was completed on February 16, 2022, following the removal of double bottoms.

In total, 338 soil borings were installed and 351 soil samples were collected during the Site Assessment. **Figure 5** shows 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 feet 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 from native soil at a depth of 3.0–3.5 feet bgs consistent with the Confirmatory Sampling Protocol detailed in PADEP's *Closure Requirements for Aboveground Storage Tank Systems* (2017b). 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 E provides copies of the field notes 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* [2020]). As shown on **Table 1**, for the 20 demolished ASTs listed in Section 4, 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-TMB, and 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.
- **Short List 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, and lead.

VOCs, SVOCs, and lead were analyzed via USEPA Methods 8260B, 8270C, and 6010B, respectively.

Laboratory analytical services were provided by Alpha Analytical, Inc. of Westborough, Massachusetts, a PADEP-certified laboratory. Additionally, Alpha Analytical, Inc. subcontracted SGS North America, Inc., a PADEP-certified laboratory located in Dayton, New Jersey, for a limited set of lead analyses. 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

Site Assessment soil sampling results were compared to the applicable MSCs¹⁰ identified in Section 3.2 to help identify potential releases to the environment from the ASTs and their associated piping. **Figure**

¹⁰ 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 feet bgs in accordance with PADEP's *Closure Requirements for Aboveground Storage Tank Systems* (2017b). Since only subsurface (greater than 2 feet 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-Res 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.



5 identifies the Site Assessment sampling locations where COCs were identified at concentrations greater than the applicable MSCs. The screening evaluation identified 10 COCs in soil at concentrations greater than the applicable MSCs (i.e., benzene, 1,2-dibromoethane, ethyl benzene, MTBE, toluene, 1,2,4-TMB, and 1,3,5-TMB, xylenes [total], naphthalene, and lead). Summaries of the sample results, listed by AST proximity, are provided below.

- **PB 26.** None of the Site Assessment soil samples collected in proximity to PB 26 exhibited concentrations greater than the applicable MSCs.
- **PB 27.** Twelve samples (PB-27-01-SS01, PB-27-02-SS01, PB-27-03-SS01, PB-27-04-SS01, PB-27-05-SS01, PB-27-06-SS01, PB-27-07-SS01, PB-27-08-SS01, PB-27-09-SS01, PB-27-10-SS01, PB-27-11-SS01, and PB-27-15-SS01) collected in proximity to PB 27 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, MTBE, toluene, 1,2,4-TMB, 1,3,5-TMB, xylenes (total), naphthalene, and lead.
- **PB 28.** Five samples (PB-28-05-SS01, PB-28-08-SS01, PB-28-09-SS01, PB-28-10-SS01, and PB-28-19-SS01) collected in proximity to PB 28 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, toluene, 1,2,4-TMB, 1,3,5-TMB, xylenes (total), and lead.
- **PB 29.** Twenty-three samples (PB-29-01-SS01, PB-29-02-SS01, PB-29-03-SS01, PB-29-04-SS01, PB-29-05-SS01, PB-29-06-SS01, PB-29-07-SS01, PB-29-08-SS01, PB-29-09-SS01, PB-29-10-SS01, PB-29-11-SS01, PB-29-12-SS01, PB-29-13-SS01, PB-29-15-SS01, PB-29-16-SS01, PB-29-19-SS01, PB-29-20-SS01, PB-29-21-SS01, PB-29-22-SS01, PB-29-23-SS01, PB-29-24-SS01, PB-29-25-SS01, and PB-29-26-SS01) collected in proximity to PB 29 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, MTBE, toluene, 1,2,4-TMB, 1,3,5-TMB, xylenes (total), naphthalene, and lead.
- **PB 33.** Eight samples (PB-33-01-SS01, PB-33-02-SS01, PB-33-04-SS01, PB-33-05-SS01, PB-33-09-SS01, PB-33-11-SS01, PB-33-12-SS01, and PB-33-18-SS01) collected in proximity to PB 33 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, MTBE, and toluene.
- **PB 34.** Three samples (PB-34-03-SS01, PB-34-11-SS01, and PB-34-12-SS01) collected in proximity to PB 34 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.
- **PB 35.** Eight samples (PB-35-06-SS01, PB-35-08-SS01, PB-35-09-SS01, PB-35-10-SS01, PB-35-11-SS01, PB-35-12-SS01, PB-35-13-SS01, and PB-35-14-SS01) collected in proximity to PB 35 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.
- **PB 36.** Six samples (PB-36-01-SS01, PB-36-03-SS01, PB-36-04-SS01, PB-36-07-SS01, PB-36-09-SS01, and PB-36-10-SS01) collected in proximity to PB 36 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, toluene, 1,2,4-TMB, 1,3,5-TMB, xylenes (total), and naphthalene.
- **PB 37.** Six samples (PB-37-03-SS01, PB-37-05-SS01, PB-37-11-SS01, PB-37-14-SS01, PB-37-15-SS01, and PB-37-17-SS01) collected in proximity to PB 37 and its associated piping exhibited



concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.

- **PB 38.** Six samples (PB-38-03-SS01, PB-38-04-SS01, PB-38-08-SS01, PB-38-10-SS01, PB-38-11-SS01, and PB-38-13-SS01) collected in proximity to PB 38 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.
- **PB 39.** Five samples (PB-39-04-SS01, PB-39-06-SS01, PB-39-08-SS01, PB-39-09-SS01, and PB-39-12-SS01) collected in proximity to PB 39 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, toluene, 1,2,4-TMB, 1,3,5-TMB, and naphthalene.
- **PB 40.** Two samples (PB-40-07-SS01 and PB-40-12-SS01) collected in proximity to PB 40 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.
- **PB 42.** One sample (PB-42-09-SS01) collected in proximity to PB 42 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene.
- **PB 43.** None of the Site Assessment soil samples collected in proximity to PB 43 exhibited concentrations greater than the applicable MSCs.
- **PB 83.** Two samples (PB-83-01-SS01 and PB-83-02-SS01) collected in proximity to PB 83 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene.
- **PB 84.** Two samples (PB-84-04-SS01 and PB-84-14-SS01) collected in proximity to PB 84 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, 1,2,4-TMB, 1,3,5-TMB, and naphthalene.
- **PB 85.** Two samples (PB-85-06-SS01 and PB-85-09-SS01) collected in proximity to PB 85 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene.
- **PB 128.** Four samples (PB-128-01-SS01, PB-128-04-SS01, PB-128-05-SS01, and PB-128-08-SS01) collected in proximity to PB 128 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene and lead.
- **PB 129.** Five samples (PB-129-01-SS01, PB-129-02-SS01, PB-129-03-SS01, PB-129-06-SS01, and PB-129-10-SS01) collected in proximity to PB 129 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, ethyl benzene, toluene, 1,2,4-TMB, 1,3,5-TMB, xylenes (total), and lead.
- **PB 204.** Five samples (PB-204-01-SS01, PB-204-05-SS01, PB-204-06-SS01, PB-204-11-SS01, and PB-204-12-SS01) collected in proximity to PB 204 and its associated piping exhibited concentrations greater than one or more applicable MSCs. COCs identified included benzene, 1,2-dibromoethane, naphthalene, and lead.



Based upon the results, no evidence of a release from PB 26 or PB 43 was identified. The Site Assessment outcome for PB 26 and PB 43 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, potential releases of regulated substances to the environment from PB 27, PB 28, PB 29, PB 33, PB 34, PB 35, PB 36, PB 37, PB 38, PB 39, PB 40, PB 42, PB 84, PB 85, PB 128, PB 129, and PB 204 were identified. The Site Assessment outcome category for these ASTs is “No Obvious Contamination – Sample Results Do Not Meet Action Levels.”

The identification of concentrations in soil above applicable MSCs resulted in notifying PADEP of potential releases to the environment on July 13 (PB 27, PB 28, PB 29, and PB 33), August 3 (PB 34, PB 35, PB 40, PB 42, PB 84, PB 128, and PB 129), August 12 (PB 38, PB 39, and PB 85), August 20 (PB 37), and October 27, 2021 (PB 36 and PB 204). PADEP had previously assigned the release observed at PB 83 to Incident No. 56377. These additional release notifications within the Site were assigned to the same incident number. Copies of the notification documents are included in **Appendix F**.

Table 4 lists the COCs identified in soil in the vicinity of each on-site tank during Site Assessment sampling. **Appendix G** provides the soil analytical results from the Site Assessment. Copies of the laboratory reports are included as **Appendix H**.



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

The identification of obvious contamination at PB 83 and concentrations of COCs greater than applicable MSCs in soil in proximity to the ASTs noted on **Table 4** meant that additional evaluation was necessary to determine whether additional sampling or remedial measures were warranted. Based on visual observation of the release at PB 83 and the results of Site Assessment sampling for PB 83 and the other on-site tanks (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 32 soil borings and the collection of an additional 79 soil samples. Several samples were collected at shallower (0–0.5 feet bgs) and deeper soil intervals (e.g., 3.5–4, 6–6.5, and 14–14.5 feet 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. Sampling was completed by Ransom Consulting, LLC and their subcontractor Probe Lease.

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 (with the exception of where piping traverses through the berms). Where space existed between locations of identified soil contamination and the berms, horizontal soil sampling was considered in an attempt to delineate soil contamination horizontally to within the bermed areas. The Site Assessment sampling methodology included field screening of soil using a PID during the installation of the soil borings. This allowed the field team to identify the interval with the greatest likelihood of exhibiting elevated VOCs. If samples were collected at a depth greater than 2 feet bgs, it was either because PID readings were greater than that observed from 0–2 feet bgs or PID readings indicated no evidence of volatile impacts and samples were then collected from 3.0–3.5 feet bgs per PADEP (2017b). For these situations, shallow soil sampling for VOCs was unnecessary. Instead, the Site Characterization conservatively assumed that the concentrations observed in these subsurface samples also exist at the surface (i.e., 0–2 feet bgs). This logic was not used where SVOCs or lead were 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 water table depth. Finally, historical soil sampling results were used to help support Site Characterization decision-making.

Site Characterization soil sampling began on February 7 and was completed on February 15, 2022. Figure 5 shows the location of each of the Site Characterization soil borings. **Appendix E** contains copies of the field notes that describe the soil cores.

6.3 Site Characterization Results

Table 5 presents a comparison of the maximum detected COC surface soil and subsurface soil concentrations across the Site to the applicable MSCs. The data summarized on **Table 5** includes both Site Assessment and Site Characterization sampling results. With consideration for surface and subsurface soil, a comparison to applicable MSCs indicates the following:

- Lead and naphthalene at concentrations in surface soil greater than the Non-Res Soil DC MSCs for surface soil;
- Naphthalene in subsurface soil at concentrations greater than the Non-Res Soil DC MSCs for subsurface soil;
- Benzene, ethylbenzene, 1,2,4-TMB, 1,3,5-TMB, xylenes, naphthalene, and lead in surface soil at concentrations greater than the Non-Res UA S-GW MSCs; and
- Benzene, 1,2-dibromoethane, ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, toluene, xylenes, naphthalene, and lead in subsurface soil at concentrations greater than the Non-Res UA S-GW MSCs.

In summary, benzene, ethylbenzene, 1,2,4-TMB, 1,3,5-TMB, xylenes, naphthalene, and lead are considered COCs in surface soil. Benzene, 1,2-Dibromoethane, ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, toluene, xylenes, naphthalene, and lead are considered COCs in subsurface soil. The spatial distribution of these COCs in soil and their concentrations relative to MSCs are shown on **Figure 5**. The following sections are organized by COC and discuss (1) why the data are sufficient to delineate the horizontal and vertical extent of impacts, and (2) support a reliable determination regarding the need for remedial measures with consideration for the selected standard (Section 3.2).

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

6.3.1 Benzene

As shown on **Table 5**, benzene was detected in surface soil in the area at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg). The concentrations in surface soil ranged from non-detect to 24 mg/kg. Benzene was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg). The concentrations in subsurface soil ranged from non-detect to 180 mg/kg.

Six locations exhibited benzene in surface soil at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg) – specifically:

- PB-29-08 (22 mg/kg; 1–1.5 feet bgs)
- PB-29-10 (24 mg/kg; 1–1.5 feet bgs)



- PB-29-11 (1.2 mg/kg; 1–1.5 feet bgs)
- PB-29-20 (1.4 mg/kg; 1.5–2 feet bgs)
- PB-33-04 (22 mg/kg; 1–1.5 feet bgs)
- PB-29-10 (24 mg/kg; 1–1.5 feet bgs).

Benzene was also detected in subsurface soil at 102 locations greater than the Non-Res UA S-GW MSC (0.5 mg/kg). The samples were associated with the following tanks:

- PB 128 (maximum [max] concentration: 1.4 mg/kg)
- PB 129 (max concentration: 0.96 mg/kg)
- PB 204 (max concentration: 2.3 mg/kg)
- PB 27 (max concentration: 69 mg/kg)
- PB 28 (max concentration: 74 mg/kg)
- PB 29 (max concentration: 110 mg/kg)
- PB 33 (max concentration: 46 mg/kg)
- PB 34 (max concentration: 180 mg/kg)
- PB 35 (max concentration: 2.5 mg/kg)
- PB 36 (max concentration: 35 mg/kg)
- PB 37 (max concentration: 11 mg/kg)
- PB 38 (max concentration: 19 mg/kg)
- PB 39 (max concentration: 73 mg/kg)
- PB 40 (max concentration: 0.59 mg/kg)
- PB 42 (max concentration: 0.78 mg/kg)
- PB 83 (max concentration: 5 mg/kg)
- PB 84 (max concentration: 2.1 mg/kg)
- PB 85 (max concentration: 18 mg/kg)

These boring locations are shown on **Figure 5**. **Figures 6a** and **6b** provide additional illustrations 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 G**.

As shown on **Figure 6a**, the horizontal extent of benzene concentrations in surface soil above the Non-Res UA S-GW MSC (0.5 mg/kg) is delineated. Samples collected at four borings (i.e., S-417, PB33-02, PB-33-13, and PB-33-06) delineate the extent of benzene concentrations in surface soil at PB-33-04 to the north, south, east, and west. The extent of benzene in surface soil at PB-33-04 is also bounded by the containment berm. Four borings (i.e., PB-29-28, PB-28-18, PB-36-PP, and PB 30-PP) delineate the extent of benzene concentrations in surface soil at tank PB 29. The extent of benzene concentrations in surface soil at tank PB 29 is also bounded by the concrete containment walls. Samples collected at four borings (i.e., PB-28-18, PB36-PP, PB-44-Line-4, and AOI1_BH 14-004) delineate the extent of benzene concentrations at boring PB-37-03 to the north, south, east, and west. Finally, the extent of benzene



concentrations in surface soil at boring PB-37-03 can also be bounded by the concrete containment walls.

As shown on **Figure 6b**, the horizontal extent of benzene in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 204, PB 33, PB 29, PB 28, PB 27, PB 34, PB 35, PB 36, PB 37, PB 38, PB 39, PB 85, PB 40, PB 84, PB 83, PB 128, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks PB 204, PB 33, PB 34, PB 40, and PB 128) is defined through a combination of, but not limited to, the following (moving from south to north):

- PB 128 containment berm
- Boring S-404
- Boring S-403
- PB 34/PB 40/PB 35 containment berm
- Boring AOI-2_BH-13-79
- Boring S-391D
- PB 33 containment berm
- PB 204 containment wall

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 204, PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Boring PB-204-01
- PB 29 containment wall
- Boring S-331
- Boring PB-28-02
- PB 28 containment wall
- Boring PB-27-18
- PB 27 containment wall

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 85, PB 42, PB 83, and PB 129) is defined through a combination of, but not limited to, the following (moving north to south):

- PB 27 containment wall
- Boring PB-85-10
- Borings PB-42-05 and PB-42-10
- Boring PB-83-03
- Borings S-389D and PB-129-09



Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 83, PB 129, PB 128, and PB 40) is defined through a combination of, but not limited to, the following (moving east to west):

- Boring PB-86-06
- Boring PB-129-18
- Boring PB-128-10
- PB 40 containment berm
- Boring PB-40-13 and S-403

The vertical extent of benzene concentrations in subsurface soil above the Non-Res UA S-GW MSC (0.5 mg/kg) is also delineated, with the exception of eight locations (i.e., borings PB-27-02, PB-28-19, PB 29-03, PB-29-28, PB-33-05, PB-34-11, PB-39-12, and PB-83-01) where concentrations in the deepest samples were found to be greater than the Non-Res UA S-GW MSC. In each of these eight locations, historical LNAPL plumes and/or dissolved-phase benzene groundwater contamination exists as discussed in Section 2.6.2 (see Figures 6-3, 10-2, and 10-3 of the AOI 1 RIR [Stantec 2016a] provided in **Appendix A**) and adequate groundwater characterization is available in these areas to complete Site Characterization.

Based upon the historical groundwater data upgradient, within and downgradient of the Site, there is no evidence that benzene in soil identified during Site Assessment/Characterization with concentrations greater than Non-Res UA S-GW is contributing notably to the pre-existing groundwater contamination within the Site. The sources of groundwater contamination appear to be related to the historically identified LNAPL plumes and other releases detailed in Evergreen's AOI 1 and AOI 2 RIRs as illustrated on the select figures included in **Appendix A**.

The nature and extent of benzene in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.2 1,2-Dibromoethane

As shown on **Table 5**, 1,2-dibromoethane was not detected in surface soil in the area at concentrations greater than the Non-Res UA S-GW MSC (0.01 mg/kg). 1,2-Dibromoethane was detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.01 mg/kg). The concentrations in subsurface soil ranged from non-detect to 0.8 mg/kg.

Two locations exhibited 1,2-dibromoethane in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.01 mg/kg); specifically, PB-204-06 (0.043 mg/kg at 3-3.5 feet bgs) and PB-204-11 (0.08 mg/kg at 4.5-5 feet bgs).

These boring locations are shown on **Figure 5**. **Figures 7a** and **7b** provide additional illustrations of the spatial distribution of 1,2-dibromoethane in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.



As shown on **Figure 7b**, the horizontal extent of 1,2-dibromoethane in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (0.5 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tank PB 204. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of borings PB-204-06 and PB-204-11) is defined through a combination of, but not limited to, the following borings (moving from north to south):

- PB-204-03
- PB-204-04
- PB-204-08
- PB-204-10

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of borings PB-204-06 and PB-204-11) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-204-03
- PB-204-02

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of borings PB-204-06 and PB-204-11) is defined through a combination of, but not limited to, the following borings (moving north to south):

- PB-204-07
- PB-204-12

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., north of borings PB-204-06 and PB-204-11) is defined through a combination of, but not limited to, the following:

- PB 204 containment wall
- Borings PB-33-01 and PB-33-02

The vertical extent of 1,2-dibromoethane concentrations in subsurface soil above the Non-Res UA S-GW MSC (0.01 mg/kg) is also delineated. During the Site Characterization, a deeper sample, collected from 6–6.5 feet bgs in the vicinity of PB-204-11 (the higher of the two exceeding concentrations), did not exhibit a concentration of 1,2-dibromoethane greater than the Non-Res UA S-GW MSC (0.01 mg/kg). This sampling result demonstrates that 1,2-dibromoethane in subsurface soil near PB 204 has not impacted shallow groundwater in the area of the Site.

The nature and extent of 1,2-dibromoethane in soil at the Site has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.



6.3.3 Ethylbenzene

As shown on **Table 5**, ethylbenzene was detected in surface soil in the area at concentrations greater than the Non-Res UA S-GW MSC (70 mg/kg). The concentrations in surface soil ranged from non-detect to 290 mg/kg. Ethylbenzene was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (70 mg/kg). The concentrations in subsurface soil ranged from non-detect to 700 mg/kg.

Three locations exhibited ethylbenzene in surface soil at concentrations greater than the Non-Res UA S-GW MSC (70 mg/kg); specifically, borings PB-29-08 (290 mg/kg at 1–1.5 feet bgs), PB-29-10 (77 mg/kg at 1–1.5 feet bgs), and PB-33-04 (91 mg/kg at 1–1.5 feet bgs).

Ethylbenzene was also detected in subsurface soil at 25 locations greater than the Non-Res UA S-GW MSC (70 mg/kg). The samples were associated with the following tanks:

- PB 129 (max concentration: 230 mg/kg)
- PB 27 (max concentration: 250 mg/kg)
- PB 28 (max concentration: 700 mg/kg)
- PB 29 (max concentration: 220 mg/kg)
- PB 33 (max concentration: 83 mg/kg)
- PB 36 (max concentration: 260 mg/kg)
- PB 39 (max concentration: 180 mg/kg)

These boring locations are shown on **Figure 5**. **Figures 8a** and **8b** provide additional illustrations of the spatial distribution of ethylbenzene in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 8a**, the horizontal extent of ethylbenzene concentrations in surface soil above the Non-Res UA S-GW MSC (70 mg/kg) is delineated. Samples collected at four borings (i.e., S-417, PB33-02, PB-33-13, and PB-33-06) delineate the extent of ethylbenzene concentrations in surface soil at PB-33-04 to the north, south, east, and west. The extent of ethylbenzene in surface soil at PB-33-04 is also bounded by the containment berm. Several borings (i.e., PB-29-20, PB-28-18, PB-29-11, PB 30-PP, and PB27-1 20151029) delineate the extent of ethylbenzene concentrations in surface soil east, west, and south of tank PB 29. As discussed in Section 6.2, subsurface soil only was sampled in several borings installed along the northern containment wall of PB 29 based upon field screening results (i.e., PB-29-27, PB-29-26, PB-29-02, and PB-29-01). As shown on **Figure 8b**, ethylbenzene concentrations observed at these locations were less than the Non-Res UA S-GW MSC (70 mg/kg), indicating that the surface soil concentrations would likewise be less than the Non-Res UA S-GW MSC (70 mg/kg). The extent of concentrations in surface soil to the north is also bounded by the containment berm.

As shown on **Figure 8b**, the horizontal extent of ethylbenzene in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (70 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 33, PB 29, PB 28, PB 27, PB 36, PB 39, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks



PB 33, PB 36, and PB 129) is defined through a combination of, but not limited to, the following borings (moving from south to north):

- PB-128-03
- PB-36-06 and -06R
- PB-33-02
- PB-29-01

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 33, PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Boring PB-204-12
- PB 33 containment berm
- PB 29 containment wall
- Borings PB-29-01 and PB-29-02
- Boring S-331
- Boring PB-28-02
- PB 28 containment wall
- Boring PB-27-18
- PB 27 containment

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 39, and PB 129) is defined through a combination of, but not limited to, the following (moving north to south):

- PB 27 containment wall
- Borings PB-27-04, PB-27-17, PB-27-07, PB-39-04, PB-39-06, S-389D, PB-129-09, and PB-129-11

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 36 and PB 129) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-36-15
- PB-129-15
- PB-129-07
- PB 129-08

The vertical extent of ethylbenzene concentrations in subsurface soil above the Non-Res UA S-GW MSC (70 mg/kg) is also delineated, with the exception of one location (PB-28-19) in the area of PB 28 where the concentration in the deepest sample was found to be greater than the Non-Res UA S-GW MSC. Adequate groundwater characterization is available in this area to complete Site Characterization. Specifically, four monitoring wells surround PB 28 and each monitors the unconfined aquifer (i.e., S-76,



S-77P, S-80, and S-200)¹¹. Based upon the most recent groundwater sampling results, ethylbenzene has not been identified in groundwater at concentrations greater than the Non-Res Used Aquifer MSC. Given the historically available groundwater data upgradient, within, and downgradient of the Site, there is no evidence that ethylbenzene in soil identified during Site Assessment/Characterization with concentrations greater than Non-Res UA S-GW is contributing notably to groundwater contamination within the area of the Site.

The nature and extent of ethylbenzene in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.4 MTBE

As shown on **Table 5**, MTBE was not detected in surface soil in the area at concentrations greater than the Non-Res UA S-GW MSC (2 mg/kg). MTBE was detected in subsurface soil at a concentration greater than the Non-Res UA S-GW MSC (2 mg/kg).

Twelve locations exhibited MTBE in subsurface soil at a concentration greater than the Non-Res UA S-GW MSC (2 mg/kg) – specifically:

- PB-27-01 (49 mg/kg, 2.5-3 ft bgs)
- PB-27-02 (120 mg/kg, 3-3.5 ft bgs)
- PB-27-02R (2.5 mg/kg, 6-6.5 ft bgs)
- PB-27-03 (36 mg/kg, 3.5-4 ft bgs)
- PB-29-03R (4.6 mg/kg, 6-6.5 ft bgs)
- PB-27-05 (9.5 mg/kg, 3.5-4 ft bgs)
- PB-27-06 (11 mg/kg, 4-4.5 ft bgs)
- PB-27-10 (7.2 mg/kg, 3.5-4 ft bgs)
- PB-29-03 (22 mg/kg, 4.5-5 ft bgs)
- PB-29-07 (2.2 mg/kg, 3-3.5 ft bgs)
- PB-29-12 (12 mg/kg, 3-3.5 ft bgs)
- PB-33-11 (2.6 mg/kg, 4-4.5 ft bgs)

The boring locations are shown on **Figure 5**. **Figures 9a and 9b** provide an additional illustration of the spatial distribution of MTBE in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 9b**, the horizontal extent of MTBE in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (2 mg/kg) at the Tank Group is delineated. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western

¹¹ S-76 was last sampled in August 2018. S-77P was last sampled in July 2018. S-80 was last sampled in May 2014. S-200 was last sampled in May 2021.



side of the Tank Group (i.e., west of PB 33, PB 29, and PB 27) is defined through a combination of, but not limited to, the following (moving from south to north):

- Boring PB-33-16
- Borings PB-33-10 and PB-33-01
- PB 33 containment berm
- PB 29 containment wall
- Boring PB 29-01
- PB 27 containment wall
- Boring S-331

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Tank Group (i.e., north of PB 33, PB 29, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Boring PB-33-01
- PB 33 containment wall
- Borings PB-33-02 and PB-33-03
- Borings PB-29-01, PB-29-02, PB-29-05, and PB-29-06
- PB 29 containment wall
- Borings PB-29-26 and PB-29-27
- Boring PB-27-18
- PB 27 containment wall

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Tank Group (i.e., east of PB 27, PB 29 and PB 33) is defined through a combination of, but not limited to, the following (moving north to south):

- Boring PB-27-17
- Boring PB27-4-20151029
- Boring PB-27-07
- PB 27 containment wall
- PB 29 containment wall
- Boring PB-28-17
- Borings PB-33-07 and PB-33-14

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Tank Group (i.e., south of PB 33, PB 29, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Boring PB-33-16
- PB 33 containment berm



- Boring PB-33-12
- Borings PB-29-09, PB-29-04, PB-29-16, PB-29-21, and PB-29-23
- PB 29 containment wall
- Borings PB-27-09 and PB-27-11
- Boring B27_02272015

The vertical extent of MTBE concentrations in subsurface soil above the Non-Res UA S-GW MSC (2 mg/kg) is delineated, except for one location (i.e., PB-33-11) where concentrations were found to be greater than the Non-Res UA S-GW MSC (2 mg/kg). At this location, historical dissolved-phase MTBE groundwater contamination exists as discussed in Section 2.6.2 (see Figure 10-4 of the AOI 1 RIR [Stantec 2016a]), and adequate groundwater characterization is available in these areas to complete Site Characterization.

Based upon the historical groundwater data upgradient, within and downgradient of Tank Group 02, there is no evidence that MTBE in soil identified during Site Assessment and Characterization with concentrations greater than Non-Res UA S-GW is contributing notably to the pre-existing groundwater contamination within the Tank Group 02 area. The sources of groundwater contamination appear to be related to the historically identified LNAPL plumes and other releases detailed in Evergreen's AOI 1 RIR and AOI 2 RIR as illustrated on the select figures included in **Appendix C**.

The nature and extent of MTBE in soil in Tank Group 02 has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.5 1,2,4-TMB

As shown on **Table 5**, 1,2,4-TMB was detected in surface soil in the area at a concentration greater than the Non-Res UA S-GW MSC (300 mg/kg). The concentrations in surface soil ranged from non-detect to 680 mg/kg. 1,2,4-TMB was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (300 mg/kg). The concentrations in subsurface soil ranged from non-detect to 1,000 mg/kg.

Only one location exhibited 1,2,4-TMB in surface soil at a concentration greater than the Non-Res UA S-GW MSC (300 mg/kg); specifically, PB-29-08 (680 mg/kg at 1–1.5 feet bgs).

1,2,4-TMB was also detected in subsurface soil at 14 locations greater than the Non-Res UA S-GW MSC (300 mg/kg). The samples were associated with the following tanks:

- PB 129 (max concentration: 1,000 mg/kg)
- PB 27 (max concentration: 530 mg/kg)
- PB 28 (max concentration: 870 mg/kg)
- PB 29 (max concentration: 540 mg/kg)
- PB 36 (max concentration: 670 mg/kg)
- PB 39 (max concentration: 390 mg/kg)



These boring locations are shown on **Figure 5**. **Figures 10a** and **10b** provide additional illustrations of the spatial distribution of 1,2,4-TMB in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 10a**, the horizontal extent of 1,2,4-TMB concentrations in surface soil above the Non-Res UA S-GW MSC (300 mg/kg) is delineated. Samples collected at five borings (i.e., S-417, PB-29-10, PB-29-11, PB-29-20, and PB-29-18) delineate the extent of 1,2,4-TMB concentrations in surface soil at PB-29-08 to the northwest, south, and west. As discussed in Section 6.2, subsurface soil only was sampled in several borings installed along the northern containment wall based upon field screening results (i.e., PB-29-27, PB-29-26, PB-29-02, and PB-29-01). As shown on **Figure 10b**, the 1,2,4-TMB concentrations observed at these locations were less than the Non-Res UA S-GW MSC (300 mg/kg) indicating that the surface soil concentrations would likewise be less than the Non-Res UA S-GW MSC (300 mg/kg). Finally, the extent of 1,2,4-TMB in surface soil at PB-29-08 can also be bounded by the containment berm.

As shown on **Figure 10b**, the horizontal extent of 1,2,4-TMB in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (300 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 29, PB 28, PB 27, PB 36, PB 39, PB 84, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks PB 29, PB 36, and PB 129) is defined through a combination of, but not limited to, the following borings (moving from south to north):

- PB-128-01
- PB-84-13
- PB-36-06
- PB-29-23
- PB 30-N
- P-29-01

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- PB 29 containment wall
- Borings PB-29-01, PB-29-02, PB-29-26, and PB-28-02
- PB 28 containment wall
- Boring PB-27-18
- PB 27 containment wall

The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 39, and PB 129) is defined through a combination of, but not limited to, the following (moving north to south):

- PB 27 containment wall



- Borings PB-27-17, PB-27-07, PB-39-04, PB-39-06, PB-129-09, and PB-129-11

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 36, PB 84, and PB 129) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-36-15 and S-404
- PB-84-17
- PB-84-18
- PB-129-15
- PB-129-07
- PB 129-08

The vertical extent of 1,2,4-TMB concentrations in subsurface soil above the Non-Res UA S-GW MSC (300 mg/kg) is also delineated. During the Site Characterization at each of the exceeding locations, a deeper sample, collected from 6–6.5 feet bgs, did not exhibit an exceeding concentration of 1,2,4-TMB. These sampling results demonstrate that 1,2,4-TMB in subsurface soil has not impacted shallow groundwater in the area of the Site.

The nature and extent of 1,2,4-TMB in soil near the Site has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.6 1,3,5-TMB

As shown on **Table 5**, 1,3,5-TMB was detected in surface soil in the area at a concentration greater than the Non-Res UA S-GW MSC (93 mg/kg). The concentrations in surface soil ranged from non-detect to 260 mg/kg. 1,3,5-TMB was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (93 mg/kg). The concentrations in subsurface soil ranged from non-detect to 400 mg/kg.

Only one location exhibited 1,3,5-TMB in surface soil at a concentration greater than the Non-Res UA S-GW MSC (93 mg/kg); specifically, PB-29-08 (260 mg/kg at 1–1.5 feet bgs).

1,3,5-TMB was also detected in subsurface soil at 15 locations greater than the Non-Res UA S-GW MSC (93 mg/kg). The samples were associated with the following tanks:

- PB 129 (max concentration: 310 mg/kg)
- PB 27 (max concentration: 200 mg/kg)
- PB 28 (max concentration: 400 mg/kg)
- PB 29 (max concentration: 170 mg/kg)
- PB 36 (max concentration: 260 mg/kg)
- PB 39 (max concentration: 98 mg/kg)



These boring locations are shown on **Figure 5**. **Figures 11a** and **11b** provide additional illustrations of the spatial distribution of 1,3,5-TMB in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 11a**, the horizontal extent of 1,3,5-TMB concentrations in surface soil above the Non-Res UA S-GW MSC (93 mg/kg) is delineated. Samples collected at five borings (i.e., S-402, PB-29-10, PB-29-11, PB-29-20, and PB-29-18) delineate the extent of 1,3,5-TMB concentrations in surface soil at PB-29-08 to the northwest, south, and west. As discussed in Section 6.2, subsurface soil only was sampled in several borings installed along the northern containment wall based upon field screening results (i.e., PB-29-27, PB-29-26, PB-29-02, and PB-29-01). As shown on **Figure 11b**, the 1,3,5-TMB concentrations observed at these locations were less than the Non-Res UA S-GW MSC (93 mg/kg) indicating that the surface soil concentrations would likewise be less than the Non-Res UA S-GW MSC (93 mg/kg). Finally, the extent of 1,3,5-TMB in surface soil at PB-29-08 can also be bounded by the containment berm.

As shown on **Figure 11b**, the horizontal extent of 1,3,5-TMB in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (93 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 29, PB 28, PB 27, PB 36, PB 39, PB 84, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks PB 29, PB 36, and PB 129) is defined through a combination of, but not limited to, the following (moving from south to north):

- Borings PB-128-02, S-404, PB-84-17, PB-84-13, PB-36-06, and PB-29-13
- PB 29 containment wall

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- PB 29 containment wall
- Borings S-402, PB-29-01, PB-29-02, PB-29-26, and PB-28-02
- PB 28 containment wall
- PB 27 containment wall
- Boring PB-27-18

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 39, and PB 129) is defined through a combination of, but not limited to, the following (moving north to south):

- PB 27 containment wall
- Borings PB-27-17, PB-27-07, PB-39-04, PB-39-06, S-389D, PB-129-09, and PB-129-11

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 36, PB 84, and PB 129) is defined through a combination of, but not limited to, the following borings (moving west to east):



- PB-36-15 and S-404
- PB-84-17
- PB-84-18
- PB-129-15
- PB-129-07
- PB 129-08

The vertical extent of 1,3,5-TMB concentrations in subsurface soil above the Non-Res UA S-GW MSC (93 mg/kg) is also delineated. During the Site Characterization at each of the exceeding locations, a deeper sample, collected from 6–6.5 feet bgs, did not exhibit an exceeding concentration of 1,3,5-TMB. These sampling results demonstrate that 1,3,5-TMB in subsurface soil has not impacted shallow groundwater in the area of the Site.

The nature and extent of 1,3,5-TMB in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.7 Toluene

As shown on **Table 5**, toluene was not detected in surface soil in the area at concentrations greater than the Non-Res UA S-GW MSC (100 mg/kg). Toluene was detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (100 mg/kg). The concentrations in subsurface soil ranged from non-detect to 2,000 mg/kg.

Toluene was also detected in subsurface soil at 15 locations greater than the Non-Res UA S-GW MSC (100 mg/kg). The samples were associated with the following tanks:

- PB 129 (max concentration: 250 mg/kg)
- PB 27 (max concentration: 370 mg/kg)
- PB 28 (max concentration: 2000 mg/kg)
- PB 29 (max concentration: 540 mg/kg)
- PB 33 (max concentration: 180 mg/kg)
- PB 36 (max concentration: 180 mg/kg)
- PB 39 (max concentration: 350 mg/kg)

These boring locations are shown on **Figure 5**. **Figures 12a** and **12b** provide additional illustrations of the spatial distribution of toluene in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 12b**, the horizontal extent of toluene in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (100 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 33, PB 29, PB 28, PB 27, PB 36, PB 39, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks PB 33, PB 36,



and PB 129) is defined through a combination of, but not limited to, the following (moving from south to north):

- Borings PB-129-05 and PB-36-06
- PB 36 containment wall
- Boring PB-33-03
- PB 33 containment berm

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 33, PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Boring S-417
- PB 33 containment berm
- Borings PB-29-01 and PB-29-28
- PB 29 containment wall
- Borings PB-29-05 and PB-28-02
- PB 28 containment wall
- Boring PB-27-01
- PB 27 containment wall

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 39, and PB 129) is defined through a combination of, but not limited to, the following borings (moving north to south):

- PB-27-04
- PB-27-06
- PB-27-11
- PB-39-04
- PB-39-06
- PB-129-09

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 33, PB 36, and PB 129) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-33-07
- PB-36-10
- PB-129-07

The vertical extent of toluene concentrations in subsurface soil above the Non-Res UA S-GW MSC (100 mg/kg) is also delineated. During the Site Characterization at each of the exceeding locations, depending on the location, a deeper sample collected either from 6–6.5 or 14–14.5 feet bgs did not



exhibit an exceeding concentration of toluene. These sampling results demonstrate that toluene in subsurface soil has not impacted shallow groundwater in the area of the Site.

The nature and extent of toluene in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.8 Xylenes

As shown on **Table 5**, xylenes were detected in surface soil in the area at a concentration greater than the Non-Res UA S-GW MSC (1,000 mg/kg). The concentrations in surface soil ranged from non-detect to 1,550 mg/kg. Xylenes were also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (1,000 mg/kg). The concentrations in subsurface soil ranged from non-detect to 3,290 mg/kg.

Only one location exhibited xylenes in surface soil at a concentration greater than the Non-Res UA S-GW MSC (1,000 mg/kg); specifically, PB-29-08 (1,550 mg/kg at 1–1.5 feet bgs).

Xylenes were also detected in subsurface soil at eight locations greater than the Non-Res UA S-GW MSC (1,000 mg/kg). The samples were associated with the following tanks:

- PB 129 (max concentration: 1,640 mg/kg)
- PB 27 (max concentration: 1,400 mg/kg)
- PB 28 (max concentration: 3,290 mg/kg)
- PB 29 (max concentration: 1,150 mg/kg)
- PB 36 (max concentration: 1,080 mg/kg)

These boring locations are shown on **Figure 5**. **Figures 13a** and **13b** provide additional illustrations of the spatial distribution of xylenes in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 13a**, the horizontal extent of xylenes concentrations in surface soil above the Non-Res UA S-GW MSC (1,000 mg/kg) is delineated. Samples collected at four borings (i.e., PB-29-10, PB-29-11, PB-29-20, and PB-29-18) delineate the extent of xylenes concentrations in surface soil at PB-29-08 to the northwest, south, and west. As discussed in Section 6.2, subsurface soil only was sampled in several borings installed along the northern containment wall based upon field screening results (i.e., PB-29-27, PB-29-26, PB-29-05, PB-29-02, and PB-29-01). As shown on **Figure 13b**, the xylenes (total) concentrations observed at these locations were less than the Non-Res UA S-GW MSC (1,000 mg/kg) indicating that the surface soil concentrations would likewise be less than the Non-Res UA S-GW MSC (1,000 mg/kg). Finally, the extent of xylenes in surface soil at PB-29-08 can also be bounded by the containment berm.

As shown on **Figure 13b**, the horizontal extent of xylenes in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (1,000 mg/kg) at the Site is delineated. Concentrations in subsurface soil above the Non-Res UA S-GW MSC were identified at (or in the vicinity of) tanks PB 29, PB 28, PB 27, PB 36, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res UA S-GW MSC identified along the western side of the Site (i.e., west of tanks PB 29, PB 36, and PB 129)



is defined through a combination of, but not limited to, the following borings (moving from south to north):

- PB-29-01
- PB-36-06
- PB-129-05
- PB-128-03

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the northern side of the Site (i.e., north of tanks PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- PB 29 containment wall
- Borings PB-29-01, PB-29-02, PB-29-05, PB-29-26, and PB-28-02
- PB 28 containment wall
- PB 27 containment wall
- Boring PB-27-01

The horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 36, and PB 129) is defined through a combination of, but not limited to, the following borings (moving north to south):

- PB-27-04
- PB-27-06
- PB-36-08
- PB-129-09
- PB-129-11



Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res UA S-GW MSC identified along the southern side of the Site (i.e., south of tanks PB 36 and PB 129) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-36-15
- PB-129-15
- PB-129-07
- PB 129-08

The vertical extent of xylenes concentrations in subsurface soil above the Non-Res UA S-GW MSC (1,000 mg/kg) is also delineated. During the Site Characterization at each of the exceeding locations, a deeper sample, collected from 6–6.5 feet bgs, did not exhibit an exceeding concentration of xylenes. These sampling results demonstrate that xylenes in subsurface soil have not impacted shallow groundwater in the area of the Site.

The nature and extent of xylenes in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.9 Naphthalene

As shown on **Table 5**, naphthalene was detected in surface soil in the area at a concentration greater than the Non-Res MSCs. The concentrations in surface soil ranged from non-detect to 79 mg/kg. Naphthalene was also detected in subsurface soil at concentrations greater than the non-Res MSCs. The concentrations in subsurface soil ranged from non-detect to 3,290 mg/kg.

Only one location exhibited naphthalene in surface soil at concentrations greater than the Non-Res Soil DC MSC for surface soil (66 mg/kg) and Non-Res UA S-GW MSC (25 mg/kg); specifically, PB-29-08 (160 mg/kg at 1–1.5 feet bgs).

Four locations exhibited naphthalene in subsurface soil at concentrations greater than the Non-Res Soil DC MSC for subsurface soil (77 mg/kg); specifically, PB-27-01 (98 mg/kg at 3–3.5 feet bgs), PB-27-02 (170 mg/kg at 3.5–4 feet bgs), PB-27-05 (93 mg/kg at 3.5–4 feet bgs), and PB-36-07 (87 mg/kg at 4–4.5 feet bgs). Fifteen locations, including the four locations previously mentioned, exhibited naphthalene in subsurface soil at concentrations greater than only the Non-Res UA S-GW MSC (25 mg/kg). The samples were associated with the following tanks:

- PB 204 (max concentration: 31 mg/kg)
- PB 27 (max concentration: 170 mg/kg)
- PB 29 (max concentration: 41 mg/kg)
- PB 36 (max concentration: 187 mg/kg)
- PB 39 (max concentration: 40 mg/kg)
- PB 84 (max concentration: 74 mg/kg)



These boring locations are shown on **Figure 5**. **Figures 14a** and **14b** provide additional illustrations of the spatial distribution of naphthalene in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 14a**, the horizontal extent of naphthalene concentrations in surface soil above the Non-Res MSCs is delineated. Samples collected at five borings (i.e., PB-29-26R, PB-29-18, PB-29-20, PB-29-11, and PB-29-10) delineate the extent of naphthalene concentrations in surface soil at PB-29-08 to the north, south, east and west. The extent of naphthalene in surface soil at PB-29-08 is also bounded by the containment berm.

As shown on **Figure 14b**, the horizontal extent of naphthalene in subsurface soil at concentrations greater than the Non-Res MSCs at the Site is delineated. Concentrations in subsurface soil above the Non-Res MSCs were identified at (or in the vicinity of) tanks PB 204, PB 29, PB 27, PB 36, PB 39, and PB 84. The horizontal extent of concentrations in subsurface soil greater than the Non-Res MSCs identified along the western side of the Site (i.e., west of tanks PB 204, PB 36, and PB 84) is defined through a combination of, but not limited to, the following (moving from south to north):

- PB 84 containment berm
- Borings PB-40-01, PB-36-06, PB-204-08, and PB-204-04

The horizontal extent of concentration in subsurface soil greater than the Non-Res MSCs identified along the northern side of the Site (i.e., north of tanks PB 204, PB 29, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- Borings PB-204-03 and PB 204-02
- PB 29 containment wall
- Borings PB-29-01, PB-29-28, and PB-29-05
- PB 27 containment wall
- Borings PB-27-01, PB 27-17, and PB-27-18

The horizontal extent of concentrations in subsurface soil greater than the Non-Res MSCs identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 39, and PB 84) is defined through a combination of, but not limited to, the following (moving north to south):

- PB 27 containment wall
- Borings PB-27-04, PB-27-17, PB-27-07, PB-27-12, PB-27-16, PB-39-04, PB-39-06, PB-84-07, and PB-84-11

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res MSCs identified along the southern side of the Site (i.e., south of tanks PB 204, PB 84 and PB 39) is defined through a combination of, but not limited to, the following borings (moving west to east):

- PB-204-08
- PB-204-10
- PB-204-11
- PB-204-12



- AOI1_BH14-042 PB-84-15
- PB-38-09
- PB-39-08

The vertical extent of naphthalene concentrations in subsurface soil above the Non-Res MSCs is also delineated. During the Site Characterization at each of the exceeding locations, a deeper sample, collected from 6–6.5 feet bgs, did not exhibit an exceeding concentration of naphthalene. These sampling results demonstrate that naphthalene in subsurface soil has not impacted shallow groundwater in the area of the Site.

The nature and extent of naphthalene in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.

6.3.10 Lead

As noted by Stantec (2016a), the presence of lead in soil may not be associated with releases from the on-site ASTs but rather with the occurrence of (presumably smelter) slag and cinders in areas of anthropogenic fill at the Site. Despite the known presence of historical lead impacts in soil in this area and the lack of potential lead-containing product storage at the Site, PESRM attempted to delineate the horizontal and vertical extent of lead in soil at concentrations above the applicable MSCs in the Site area. This included the installation of borings at the perimeter of the Site and adjacent to the containment berms. Delineation beyond the extent of the containment berm is not warranted since releases to soil from the ASTs would have been contained by these berms.

As shown on **Table 5**, lead was detected in surface soil in the area at concentrations greater than the Non-Res Soil DC MSC for surface soil (1,000 mg/kg) and Non-Res UA S-GW MSC (450 mg/kg). The concentrations in surface soil ranged from 4.6 to 2,500 mg/kg. Lead was also detected in subsurface soil at concentrations greater than the Non-Res UA S-GW MSC (450 mg/kg). The concentrations in subsurface soil ranged from 2.7 to 3,920 mg/kg.

Lead was detected in surface soil at two locations at concentrations greater than the Non-Res Soil DC MSC for surface soil (1,000 mg/kg); specifically, PB-27-02R (1,210 mg/kg at 0–0.5 feet bgs) and PB-29-02R (2,500 mg/kg at 0–0.5 feet bgs). It was also detected in surface soil at three locations greater than the Non-Res UA S-GW MSC (450 mg/kg); specifically, PB-27-02R (1,210 mg/kg at 0–0.5 feet bgs), PB-29-02R (2,500 mg/kg at 0–0.5 feet bgs), and PB-34-03R (488 mg/kg at 0–0.5 feet bgs).

In subsurface soil, lead was detected at 20 locations at concentrations greater than the Non-Res UA S-GW MSC (450 mg/kg). The samples were associated with the following tanks:

- PB 128 (max concentration: 1,980 mg/kg)
- PB 129 (max concentration: 3,920 mg/kg)
- PB 204 (max concentration: 540 mg/kg)
- PB 27 (max concentration: 1,580 mg/kg)
- PB 28 (max concentration: 461 mg/kg)



- PB 29 (max concentration: 2,110 mg/kg)
- PB 34 (max concentration: 1,330 mg/kg)
- PB 35 (max concentration: 1,520 mg/kg)
- PB 37 (max concentration: 2,740 mg/kg)
- PB 38 (max concentration: 780 mg/kg)
- PB 40 (max concentration: 1,070 mg/kg)

These boring locations are shown on **Figure 5**. **Figures 15a** and **15b** provide additional illustrations of the spatial distribution of lead in surface and subsurface soil, respectively, relative to the applicable MSCs. Tables with the soil analytical results are provided in **Appendix G**.

As shown on **Figure 15a**, the horizontal extent of lead concentrations in surface soil above the Non-Res MSCs is delineated. Samples collected at six borings (i.e., PB-29-28, PB-29-15R, PB-29-10, PB-29-26R, PB-29-08, and PB-29-26R) delineate the extent of lead concentrations in surface soil at PB-29-02R to the north, south, east, and west. The horizontal extent of lead in surface soil at PB-29-02R can also be bounded by the containment berm. Samples collected at five borings (i.e., PB-29-26R, PB-29-08 and PB-29-18, PB-27-18, PB-27-01R, and S-198) delineate the extent of lead concentrations at PB-27-02R to the north, south, east, and west. The extent of lead concentrations in surface soil at PB-27-02R can also be bounded by the concrete containment walls. Samples collected at four borings (i.e., S-391D, PB-33-17, PB-35-01, and PB-40-12R) delineate the extent of lead concentrations at PB-34-03R to the north, south, east, and west. The extent of lead concentrations in surface soil at PB-34-03R can also be bounded by the containment walls and berms.

As shown on **Figure 15b**, the horizontal extent of lead in subsurface soil at concentrations greater than the Non-Res MSCs at the Site is delineated. Concentrations in subsurface soil above the Non-Res MSCs were identified at (or in the vicinity of) tanks PB 204, PB 29, PB 28, PB 27, PB 34, PB 35, PB 37, PB 38, PB 40, PB 128, and PB 129. The horizontal extent of concentrations in subsurface soil greater than the Non-Res MSCs identified along the western side of the Site (i.e., west of tanks PB 204, PB 36, and PB 84) is defined through a combination of, but not limited to, the following (moving from south to north):

- PB 128 containment berm
- Borings S-404 and S-403
- PB 40 containment berm
- Boring S-206
- PB 34 containment berm
- Boring S-391D
- PB 204 containment wall



The horizontal extent of concentration in subsurface soil greater than the Non-Res MSCs identified along the northern side of the Site (i.e., north of tanks PB 204, PB 29, PB 28, and PB 27) is defined through a combination of, but not limited to, the following (moving west to east):

- AOI-2_BH13-52
- Boring S-417
- PB 29 containment wall
- Borings PB-29-01, S-402, S-331, and PB-28-19
- PB 28 containment wall
- PB 27 containment wall
- Borings PB-27-18 and PB 27-01

The horizontal extent of concentration in subsurface soil greater than the Non-Res MSCs identified along the eastern side of the Site (i.e., east of tanks PB 27, PB 38, PB 128, and PB 129) is defined through a combination of, but not limited to, the following borings (moving north to south):

- PB-27-03
- PB-27-05
- PB-38-13
- AOI1_BH14-005
- PB-129-02
- PB-129-04
- PB-129-15

Finally, horizontal extent of concentration in subsurface soil greater than the Non-Res MSCs identified along the southern side of the Site (i.e., south of tanks PB 34, PB 40, PB 128, PB 129, and PB 38) is defined through a combination of, but not limited to, the following (moving west to east):

- Borings PB-34-07, S-403, PB-40-13, and PB-40-11
- PB 40 containment wall
- Boring PB-128-10
- PB 128 containment berm
- Borings PB-129-15 and PB-129-03

The vertical extent of lead concentrations in subsurface soil above the Non-Res UA S-GW MSC (450 mg/kg) is also delineated. During the Site Characterization at each of the exceeding locations, a deeper sample, collected from 6–6.5 or 14–14.5 feet bgs, did not exhibit an exceeding concentration of lead. These sampling results demonstrate that lead in subsurface soil has not impacted shallow groundwater in the area of the Site.

The nature and extent of lead in on-site soil has been adequately characterized to support a reliable determination as to whether the selected standard is attained or whether remedial action is warranted.



6.4 Quality Assurance and Quality Control

During the Site Assessment/Characterization field activities, approximately one trip blank sample per day 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 G**. None of the targeted constituents were detected 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.



7 Ecological Screening Evaluation

The following describes the ecological screening evaluation that was performed for the Site. This evaluation was conducted in accordance with 25 PA Code § 250.311, as specified in 25 PA Code § 245.310(28). The regulatory framework for conducting an ecological screening evaluation under the SHS is outlined in Section II.B.2(e) and summarized in the Ecological Screening Flow Chart provided in Figure II-16 of PADEP's *Land Recycling Program Technical Guidance Manual* (2021). The key elements of the screening procedure are comprised of nine steps.

The initial screening phase of the process consists of Steps 1, 2, and 3, as follows:

- **Step 1: Presence of Light Petroleum Product Constituents.** This step determines whether the COCs in surface soil are related only to light petroleum products (i.e., gasoline, jet fuel A, kerosene, and No. 2 fuel oil/diesel fuel) which have relatively low polycyclic aromatic hydrocarbon content (ASTM International E1739-95, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*). If light petroleum product constituents (including benzene, toluene, ethylbenzene, and xylenes) are the only constituents detected, then the screening process moves to Step 9 (Final Report: No Further Ecological Evaluation Required). Due to the presence of constituents other than light petroleum products, the screening process continues to Step 2, below.
- **Step 2: Site Size.** This step determines the area of exposed and contaminated surface soil that are of potential ecological concern. The minimum areas are 2 acres of exposed and contaminated surface soil or 1,000 square feet of contaminated sediment. If the area of a site is smaller than the specified minimum areas, then the screening process moves to Step 9 (Final Report: No Further Ecological Evaluation Required). No sediment is present at the Site, but because the area of exposed contaminated soil encompasses greater than 2 acres, further ecological evaluation is required.
- **Step 3: Obvious Pathway Elimination.** This step accounts for those sites where features such as buildings, paving, or other development of a site are sufficiently extensive as to eliminate specific exposure pathways to ecological receptors. This primarily applies to sites in heavily industrialized or otherwise developed areas such that habitats or species of concern could not occur onsite or within a reasonable distance. Any site with features that obviously eliminate exposure pathways will drop out of the screening process at this point and proceed to Step 9 (Final Report - No Further Ecological Evaluation Required). Because the Site is in a heavily industrialized area unlikely to contain habitats or species of concern and because the majority of the site is covered in anthropogenic fill and asphalt or gravel pavement and does not constitute a habitat for wildlife, no further ecological evaluation is required.

8 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 horizontal and vertical delineation of soil concentrations greater than applicable MSCs at the Site.

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 3V 37 (PADEP No. 014A)
- PB 7316 (PADEP No. 071A)
- PB 14V 304 (PADEP No. 061A)
- PB 89A (PADEP No. 089A)
- PB 26 (PADEP No. 001A)
- PB 27 (PADEP No. 019A)
- PB 28 (PADEP No. 020A)
- PB 29 (PADEP No. 021A)
- PB 33 (PADEP No. 002A)
- PB 34 (PADEP No. 022A)
- PB 35 (PADEP No. 023A)
- PB 36 (PADEP No. 087A)
- PB 37 (PADEP No. 024A)
- PB 38 (PADEP No. 003A)
- PB 39 (PADEP No. 025A)
- PB 40 (PADEP No. 026A)
- PB 42 (PADEP No. 027A)
- PB 43 (PADEP No. 028A)
- PB 83 (PADEP No. 004A)
- PB 84 (PADEP No. 029A)
- PB 85 (PADEP No. 030A)
- PB 128 (PADEP No. 032A)
- PB 129 (PADEP No. 033A)
- PB 204 (PADEP No. 041A)

Visual observations of the on-site ASTs revealed no indications of release in the Categories 1 or 2 tanks, with the exception of PB 83. A petroleum sheen on pooled water and visibly contaminated soil were observed beneath the northwest tank wall. PB 83 was re-classified as a Category 3 tank and a Notification of Release was submitted to PADEP on June 10, 2021 (Incident No. No. 56377). The notification indicated an unknown amount of petroleum distillate was released from the AST. The Site Assessment outcome category for this AST is “Obvious Contamination – Sample Results Do Not Meet Action Levels.”

Category 1 tanks showed no signs of release and remain classified as Category 1. The Site Assessment outcome category for tanks PB 3V 37, PB 7316, PB 14V304, and PB 89A is “No Obvious Contamination – Sample Results Meet Action Levels.”

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



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

Site Characterization soil sampling was subsequently performed at the Site resulting in adequate delineation of the horizontal and vertical extent of COC concentrations greater than applicable MSCs. Concentrations of COCs can be demonstrated to have attained SHS with the exception of lead and naphthalene in surface soil and benzene, 1,2-dibromoethane, ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, toluene, xylenes, naphthalene, and lead in subsurface soil. As noted by Stantec (2016a), the presence of lead in soil is not believed to be associated with releases from ASTs at the Site but rather with the occurrence of (presumably smelter) slag and cinders in areas of anthropogenic fill at the Site.

Additional assessment will be performed in a forthcoming Remedial Action Plan to determine whether attainment of the SHS has been achieved or whether remedial action to address the concentrations in soil that are greater than the Non-Res UA S-GW MSCs for lead and naphthalene in surface soil and benzene, 1,2-dibromoethane, ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, toluene, xylenes, naphthalene, and lead in subsurface soil is warranted. The demonstration of attainment for all other COCs associated with closure of the Site will be presented in a forthcoming Remedial Action Completion Report.



9 References

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Tables

Aboveground Storage Tank Details

Evergreen Comprehensive List, Constituents of Concern (COC)

Soil Screening Summary – Tank Group 02 (Historical)

COCs Identified in Soil in Proximity to Tank Group 2 ASTs

Soil Screening Summary – Tank Group 02 (Site Assessment, Site Characterization)



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	2	001A	PB 26	2,142,000	Ethanol	Ethanol	R	51-33620	12/31/2021	IFR	N	90	51.17		Y	Y	1/12/2021			
Point Breeze	2	019A	PB 27	3,410,400	Gasoline Components	Short List 1,2	R	51-33620	1/15/2021	EFR	N	110	48		Y	Y	1/15/2021	7/13/2021	56377	
Point Breeze	2	020A	PB 28	3,414,432	Alkylate	Short List 1-5	R	51-33620	1/25/2021	EFR	Y, Removed	110	49		Y	Y	1/26/2021	7/13/2021	56377	
Point Breeze	2	021A	PB 29	2,935,800	Heavy Reformate	Short List 1-5	R	51-33620	2/9/2021	EFR	N	102	49		Y	Y	2/9/2021	7/13/2021	56377	
Point Breeze	2	002A	PB 33	2,935,800	Gasoline	Short List 1,2	R	51-33620	5/21/2021	EFR	N	102	49		Y	Y	6/18/2021	7/13/2021	56377	
Point Breeze	2	022A	PB 34	3,285,996	Gasoline	Short List 1,2	R	51-33620	3/31/2021	EFR	Y, Removed	110	47		Y	Y	4/21/2021	8/3/2021	56377	
Point Breeze	2	023A	PB 35	3,410,400	Gasoline	Short List 1,2	R	51-33620	3/31/2021	EFR	Y, Removed	110	48		Y	Y	4/21/2021	8/3/2021	56377	
Point Breeze	2	026A	PB 40	5,527,200	Gasoline	Short List 1,2	R	51-33620	3/29/2021	EFR	N	140	48		Y	Y	4/20/2021	8/3/2021	56377	
Point Breeze	2	032A	PB 128	6,447,000	Gasoline Components	Short List 1,2	R	51-33620	3/11/2021	EFR	Y, Removed	140	55.75		Y	Y	3/11/2021	8/3/2021	56377	
Point Breeze	2	033A	PB 129	6,447,000	Heavy Reformate	Short List 1-5	R	51-33620	3/18/2021	EFR	Y, Removed	140	55.2		Y	Y	3/18/2021	8/3/2021	56377	
Point Breeze	2	041A	PB 204	340,200	Recovered Oil	Short List 1-6	R	51-33620	9/1/2021	IFR	N	40	36		Y	Y	9/23/2021	10/27/2021	56377	
Point Breeze	2	087A	PB 36	3,410,400	Gasoline	Short List 1,2	R	51-33620	9/7/2021	IFR	Y, Removed	110	47.5		Y	Y	9/23/2021	10/27/2021	56377	
Point Breeze	2	024A	PB 37	3,200,400	Gasoline Components	Short List 1,2	R	51-33620	6/25/2021	IFR	Y, Removed	110	48		Y	Y	7/2/2021	8/20/2021	56377	
Point Breeze	2	003A	PB 38	3,410,400	Gasoline	Short List 1,2	R	51-33620	9/3/2021	EFR	N	110	48		Y	Y	9/23/2021	8/12/2021	56377	
Point Breeze	2	025A	PB 39	3,410,400	Gasoline	Short List 1,2	R	51-33620	6/16/2021	EFR	N	110	48		Y	Y	6/18/2021	8/12/2021	56377	
Point Breeze	2	027A	PB 42	2,818,200	#2 Fuel Oil	Short List 4	R	51-33620	6/9/2021	Cone Roof	N	100	48		Y	Y	6/18/2021	8/3/2021	56377	
Point Breeze	2	028A	PB 43	3,385,200	15MV1, Distillate	Short List 4	R	51-33620	6/7/2021	Cone Roof	Y, Removed	120	40		Y	Y	6/18/2021			
Point Breeze	2	004A	PB 83	3,288,600	15MV1, Distillate	Short List 4	R	51-33620	6/10/2021	Cone Roof	Y, Removed	100	56		Y	Y	6/18/2021	6/10/2021	56377	Y
Point Breeze	2	029A	PB 84	3,288,600	15MV1, Distillate	Short List 4	R	51-33620	5/26/2021	Cone Roof	Y, Removed	100	56		Y	Y	6/18/2021	8/3/2021	56377	
Point Breeze	2	030A	PB 85	1,806,000	15MV2, Distillate	Short List 4	R	51-33620	4/15/2021	Cone Roof	Y, Removed	80	48		Y	Y	4/22/2021	8/12/2021	56377	
Point Breeze	2	071A	PB 7316	3,990	Acid, Phosphoric	N/A	R	51-33620	7/23/2021	Dome Roof	N	7.75	11.25			Y	8/26/2021			
Point Breeze	2	014A	PB 3V 37	1,764	Methanol	N/A	R	51-33620	7/23/2021	Horiz, Elev	N	5	12			Y	8/26/2021			
Point Breeze	2	061A	PB 14V 304	700	Methanol	N/A	R	51-33620	8/18/2021	UNK	N	UNK	UNK			Y	9/29/2021			
Point Breeze	2	089A	PB 89A	2500	Sodium Hypochlorite	N/A	R	51-33620	7/21/2021	UNK	N	UNK	UNK			Y	8/26/2021			

Abbreviations:

R - Removed

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 02 (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	49	34	0.00053	0.21	1.2	280	0.0044			0.5	2.5
Surface Soil	VOC	Cumene	98-82-8	48	24	0.002	1.5	18	10000	0.0018			2500	0.007
Surface Soil	VOC	Ethyl Benzene	100-41-4	49	25	0.0053	4.7	72	880	0.082			70	1.03
Surface Soil	VOC	Methyl tert-butyl ether	1634-04-4	40	9	0.0007	0.17	1.3	8500	0.00015			2	0.65
Surface Soil	VOC	Toluene	108-88-3	49	32	0.00018	0.21	1.4	10000	0.00014			100	0.0
Surface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	39	26	0.00045	48	900	4700	0.19			300	3.0
Surface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	39	22	0.0036	22	360	4700	0.076			93	3.9
Surface Soil	VOC	Xylenes (total)	1330-20-7	47	33	0.00031	20	460	7900	0.058			1000	0.46
Surface Soil	SVOC	Anthracene	120-12-7	27	23	0.0051	0.32	1.6	190000	0.000084			350	0.0046
Surface Soil	SVOC	Benzo(a)anthracene	56-55-3	27	23	0.0037	0.61	3.2	130	0.025			340	0.0094
Surface Soil	SVOC	Benzo(a)pyrene	50-32-8	27	23	0.0052	0.6	3.3	91	0.036			46	0.072
Surface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	27	24	0.0081	0.91	6.7	76	0.088			170	0.039
Surface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	27	21	0.0031	0.34	1.3	190000	0.000068			180	0.0072
Surface Soil	SVOC	Chrysene	218-01-9	27	24	0.0064	0.68	3.6	760	0.0047			230	0.016
Surface Soil	SVOC	Fluorene	86-73-7	27	22	0.0053	0.61	3.3	130000	0.000025			3800	0.000870
Surface Soil	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	2	1	0.86	0.86	0.86	76	0.011			18000	0.000048
Surface Soil	SVOC	Naphthalene	91-20-3	48	39	0.0026	2.4	33	66	0.5			25	1.3
Surface Soil	SVOC	Phenanthrene	85-01-8	27	24	0.0078	1.3	6.9	190000	0.000036			10000	0.00069
Surface Soil	SVOC	Pyrene	129-00-0	27	24	0.012	1.3	7.1	96000	0.000074			2200	0.0032
Surface Soil	INORG	Arsenic	7440-38-2	1	1	0.55	0.55	0.55	61	0.009			29	0.019
Surface Soil	INORG	Barium	7440-39-3	1	1	4	4	4	190000	0.000021			8200	0.00049
Surface Soil	INORG	Cadmium	7440-43-9	1	1	0.2	0.2	0.2	1600	0.00013			38	0.0053
Surface Soil	INORG	Chromium (total)	7440-47-3	1	1	2.1	2.1	2.1						
Surface Soil	INORG	Copper	7440-50-8	1	1	16	16	16	100000	0.00016			43000	0.00038
Surface Soil	INORG	Lead	7439-92-1	44	44	2	600	6700	1000	6.7			450	15
Surface Soil	INORG	Mercury	7439-97-6	2	2	0.011	1.5	3	510	0.0059			10	0.3
Surface Soil	INORG	Nickel	7440-02-0	1	1	1.6	1.6	1.6	64000	0.000025			650	0.0025
Surface Soil	INORG	Zinc	7440-66-6	1	1	27	27	27	190000	0.00014			12000	0.0022
Subsurface Soil	VOC	Benzene	71-43-2	68	40	0.0004	1.1	5.8			330	0.018	0.5	12
Subsurface Soil	VOC	Cumene	98-82-8	67	55	0.003	3.2	19			10000	0.0019	2500	0.0076
Subsurface Soil	VOC	Ethyl Benzene	100-41-4	68	44	0.002	8.8	110			1000	0.11	70	1.6
Subsurface Soil	VOC	Methyl tert-butyl ether	1634-04-4	58	15	0.0009	0.36	2.1			9800	0.00021	2	1.1
Subsurface Soil	VOC	Toluene	108-88-3	68	36	0.002	2.6	35			10000	0.0035	100	0.35
Subsurface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	58	44	0.0019	45	490			5400	0.09	300	1.6
Subsurface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	58	37	0.001	23	250			5400	0.046	93	2.6
Subsurface Soil	VOC	Xylenes (total)	1330-20-7	66	48	0.005	45	630			9100	0.069	1000	0.63
Subsurface Soil	SVOC	Anthracene	120-12-7	42	29	0.0062	0.4	5.8			190000	0.000031	350	0.017
Subsurface Soil	SVOC	Benzo(a)anthracene	56-55-3	42	33	0.0014	0.15	1.8			190000	0.000095	340	0.0053
Subsurface Soil	SVOC	Benzo(a)pyrene	50-32-8	42	35	0.00065	0.13	1.9			190000	0.00001	46	0.041
Subsurface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	42	35	0.00057	0.2	3			190000	0.000016	170	0.018
Subsurface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	42	28	0.0013	0.1	0.66			190000	0.000035	180	0.0037
Subsurface Soil	SVOC	Chrysene	218-01-9	42	36	0.0021	0.22	2.2			190000	0.000012	230	0.0096
Subsurface Soil	SVOC	Fluorene	86-73-7	42	38	0.0056	0.55	5			190000	0.000026	3800	0.0013
Subsurface Soil	SVOC	Naphthalene	91-20-3	67	52	0.006	9	140			77	1.8	25	5.6
Subsurface Soil	SVOC	Phenanthrene	85-01-8	42	38	0.0029	1.2	19			190000	0.0001	10000	0.0019
Subsurface Soil	SVOC	Pyrene	129-00-0	42	27	0.0031	0.78	9.7			190000	0.000051	2200	0.0044
Subsurface Soil	INORG	Arsenic	7440-38-2	1	1	13	13	13			190000	0.000071	29	0.46
Subsurface Soil	INORG	Barium	7440-39-3	1	1	95	95	95			190000	0.0005	8200	0.012
Subsurface Soil	INORG	Cadmium	7440-43-9	1	1	0.28	0.28	0.28			190000	0.0000015	38	0.0074
Subsurface Soil	INORG	Chromium (total)	7440-47-3	1	1	30	30	30						
Subsurface Soil	INORG	Copper	7440-50-8	1	1	48	48	48			190000	0.00025	43000	0.0011
Subsurface Soil	INORG	Lead	7439-92-1	62	62	3.4	2900	160000			190000	0.84	450	360
Subsurface Soil	INORG	Mercury	7439-97-6	1	1	0.22	0.22	0.22			190000	0.0000012	10	0.022
Subsurface Soil	INORG	Nickel	7440-02-0	1	1	16	16	16			190000	0.000085	650	0.025
Subsurface Soil	INORG	Selenium	7782-49-2	1	1	0.63	0.63	0.63			190000	0.0000033	26	0.024
Subsurface Soil	INORG	Zinc	7440-66-6	1	1	140	140	140			190000	0.00072	12000	0.011

Notes:
Only constituents detected are shown.
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 MSCs for Xylenes (total).
Ratios of concentration to the MSCs greater than 1 are shaded in bold.
Chem Group - chemical group

Table 4**COCs Identified in Soil in Proximity to Tank Group 2 ASTs**

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

PB 26	PB 27	PB 28	PB 29	PB 33
None	Benzene Ethyl Benzene MTBE Toluene 1,2,4-TMB 1,3,5-TMB Xylenes (total) Naphthalene Lead	Benzene Ethyl Benzene Toluene 1,2,4-TMB 1,3,5-TMB Xylenes (total) Lead	Benzene Ethyl Benzene MTBE Toluene 1,2,4-TMB 1,3,5-TMB Xylenes (total) Naphthalene Lead	Benzene Ethyl Benzene MTBE Toluene
PB 34	PB 35	PB 36	PB 37	PB 38
Benzene Lead	Benzene Lead	Benzene Ethyl Benzene Toluene 1,2,4-TMB 1,3,5-TMB Xylenes (total) Naphthalene	Benzene Lead	Benzene Lead
PB 39	PB 40	PB 42	PB 43	PB 83
Benzene Ethyl Benzene Toluene 1,2,4-TMB 1,3,5-TMB Naphthalene	Benzene Lead	Benzene	None	Benzene
PB 84	PB 85	PB 128	PB 129	PB 204
Benzene 1,2,4-TMB 1,3,5-TMB Naphthalene	Benzene	Benzene Lead	Benzene Ethyl Benzene Toluene 1,2,4-TMB 1,3,5-TMB Xylenes (total) Lead	Benzene 1,2-Dibromoethane Naphthalene Lead

Table 5
Soil Screening Summary
Tank Group 02 (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					
									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	26	15	0.00033	4.3	24	280	0.086			0.5	48
Surface Soil	VOC	Cumene	98-82-8	24	21	0.00023	3.4	30	10000	0.003			2500	0.012
Surface Soil	VOC	Ethyl Benzene	100-41-4	25	19	0.00019	25	290	880	0.33			70	4.1
Surface Soil	VOC	Methyl tert-butyl ether	1634-04-4	25	8	0.00026	0.44	2	8500	0.00024			2	1
Surface Soil	VOC	Toluene	108-88-3	25	12	0.0015	6.2	65	10000	0.0065			100	0.65
Surface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	25	19	0.00089	61	680	4700	0.14			300	2.3
Surface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	25	18	0.00021	23	260	4700	0.055			93	2.8
Surface Soil	VOC	Xylenes (total)	1330-20-7	13	10	0.0054	220	1600	7900	0.2			1000	1.6
Surface Soil	SVOC	Anthracene	120-12-7	6	6	0.002	0.042	0.2	190000	0.0000011			350	0.00057
Surface Soil	SVOC	Benzo(a)anthracene	56-55-3	6	6	0.0036	0.058	0.25	130	0.0019			340	0.00074
Surface Soil	SVOC	Benzo(a)pyrene	50-32-8	6	4	0.0029	0.015	0.029	91	0.00032			46	0.00063
Surface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	6	5	0.004	0.017	0.031	76	0.00041			170	0.00018
Surface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	6	4	0.0035	0.015	0.027	190000	0.00000014			180	0.00015
Surface Soil	SVOC	Chrysene	218-01-9	6	5	0.0029	0.012	0.018	760	0.000024			230	0.000078
Surface Soil	SVOC	Fluorene	86-73-7	6	5	0.0056	0.17	0.72	130000	0.0000055			3800	0.00019
Surface Soil	SVOC	Naphthalene	91-20-3	32	21	0.0007	6.7	79	66	1.2			25	3.2
Surface Soil	SVOC	Phenanthrene	85-01-8	6	6	0.011	0.24	1.2	190000	0.0000063			10000	0.00012
Surface Soil	SVOC	Pyrene	129-00-0	6	6	0.0055	0.11	0.52	96000	0.0000054			2200	0.00024
Surface Soil	INORG	Lead	7439-92-1	27	27	4.6	240	2500	1000	2.5			450	5.6
Subsurface Soil	VOC	Benzene	71-43-2	343	243	0.00018	6.8	180			330	0.55	0.5	360
Subsurface Soil	VOC	Cumene	98-82-8	311	266	0.00014	3.7	61			10000	0.0061	2500	0.024
Subsurface Soil	VOC	1,2-Dibromoethane	106-93-4	240	2	0.043	0.062	0.08			4.2	0.019	0.005	16
Subsurface Soil	VOC	1,2-Dichloroethane	107-06-2	239	4	0.00025	0.046	0.078			98	0.0008	0.5	0.16
Subsurface Soil	VOC	Ethyl Benzene	100-41-4	321	229	0.00014	23	700			1000	0.7	70	10
Subsurface Soil	VOC	Methyl tert-butyl ether	1634-04-4	316	90	0.00024	3.3	120			9800	0.012	2	60
Subsurface Soil	VOC	Toluene	108-88-3	322	186	0.00049	34	2000			10000	0.2	100	20
Subsurface Soil	VOC	1,2,4-Trimethylbenzene	95-63-6	319	229	0.0003	55	1000			5400	0.19	300	3.3
Subsurface Soil	VOC	1,3,5-Trimethylbenzene	108-67-8	319	203	0.00021	21	400			5400	0.074	93	4.3
Subsurface Soil	VOC	Xylenes (total)	1330-20-7	244	191	0.00098	130	3300			9100	0.36	1000	3.3
Subsurface Soil	SVOC	Anthracene	120-12-7	75	43	0.00088	0.1	2.7			190000	0.000014	350	0.0077
Subsurface Soil	SVOC	Benzo(a)anthracene	56-55-3	75	48	0.00082	0.2	4.7			190000	0.000025	340	0.014
Subsurface Soil	SVOC	Benzo(a)pyrene	50-32-8	75	29	0.0011	0.31	4.2			190000	0.000022	46	0.091
Subsurface Soil	SVOC	Benzo(b)fluoranthene	205-99-2	75	35	0.00081	0.33	4.6			190000	0.000024	170	0.027
Subsurface Soil	SVOC	Benzo(g,h,i)perylene	191-24-2	75	30	0.00069	0.26	3.5			190000	0.000018	180	0.019
Subsurface Soil	SVOC	Chrysene	218-01-9	75	43	0.00061	0.32	9			190000	0.000047	230	0.039
Subsurface Soil	SVOC	Fluorene	86-73-7	75	54	0.0011	0.19	2.4			190000	0.000013	3800	0.00063
Subsurface Soil	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	13	11	0.0012	0.029	0.096			190000	0.0000051	18000	0.000053
Subsurface Soil	SVOC	Naphthalene	91-20-3	319	240	0.00053	5.8	170			77	2.2	25	6.8
Subsurface Soil	SVOC	Phenanthrene	85-01-8	75	60	0.0011	0.43	12			190000	0.000063	10000	0.0012
Subsurface Soil	SVOC	Pyrene	129-00-0	75	55	0.0008	0.3	9.8			190000	0.000052	2200	0.0045
Subsurface Soil	INORG	Lead	7439-92-1	253	253	2.7	170	3900			190000	0.021	450	8.7

Notes:

Only constituents detected are shown.

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 MSCs for Xylenes (total).

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

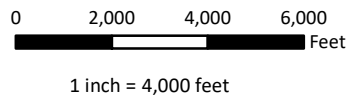
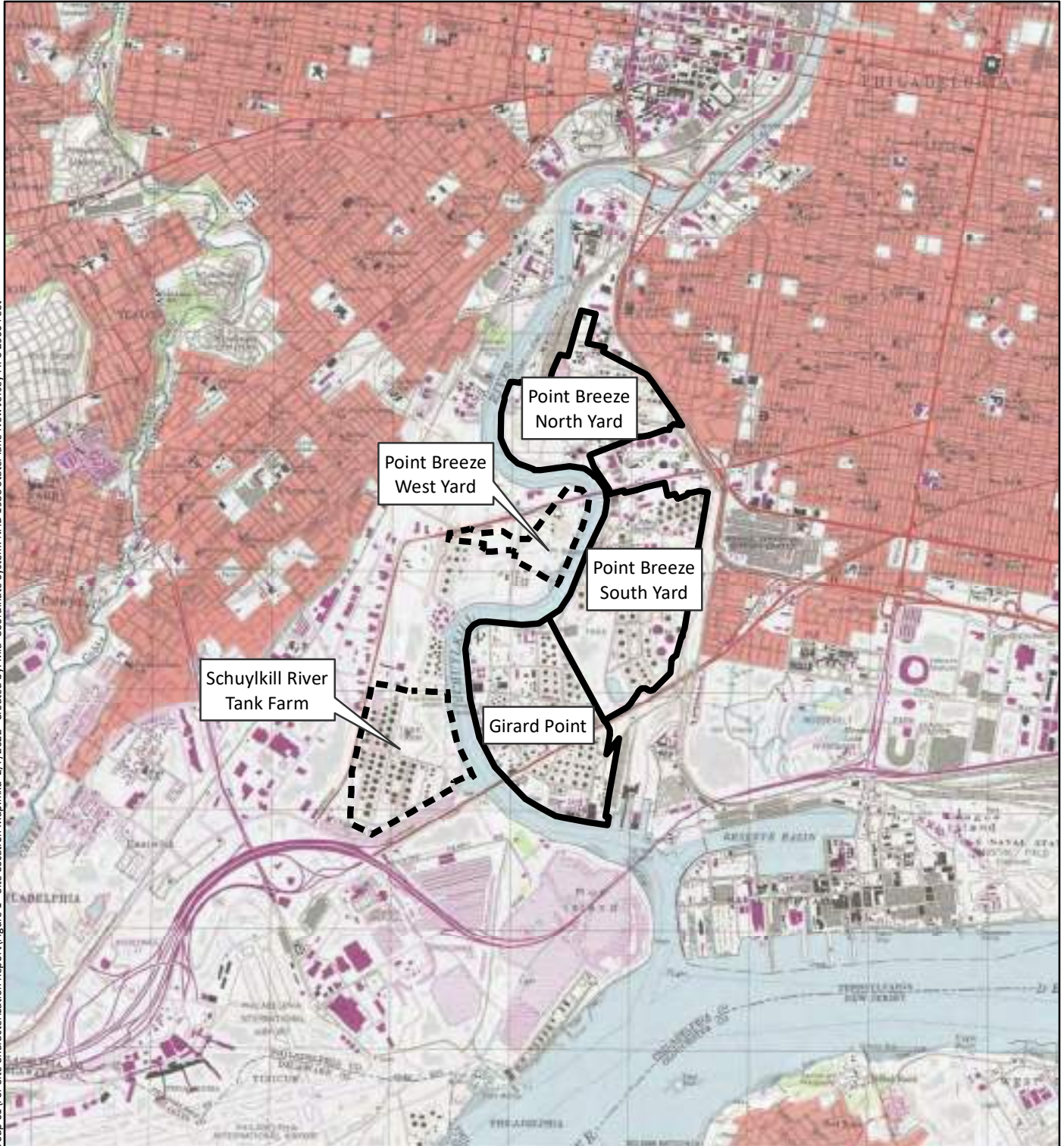
Chem Group - chemical group

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- 9b Subsurface Soil Sampling Results, Tank Group 02 (Methyl tert-butyl ether)
- 10a Surface Soil Sampling Results, Tank Group 02 (1,2,4-Trimethylbenzene)
- 10b Subsurface Soil Sampling Results, Tank Group 02 (1,2,4-Trimethylbenzene)
- 11a Surface Soil Sampling Results, Tank Group 02 (1,3,5-Trimethylbenzene)
- 11b Subsurface Soil Sampling Results, Tank Group 02 (1,3,5-Trimethylbenzene)
- 12a Surface Soil Sampling Results, Tank Group 02 (Toluene)
- 12b Subsurface Soil Sampling Results, Tank Group 02 (Toluene)
- 13a Surface Soil Sampling Results, Tank Group 02 (Xylenes (total))
- 13b Subsurface Soil Sampling Results, Tank Group 02 (Xylenes (total))
- 14a Surface Soil Sampling Results, Tank Group 02 (Naphthalene)
- 14b Subsurface Soil Sampling Results, Tank Group 02 (Naphthalene)
- 15a Surface Soil Sampling Results, Tank Group 02 (Lead)
- 15b Subsurface Soil Sampling Results, Tank Group 02 (Lead)



File: N:\GIS\Prj\044.001_PESRM-PE\MXDS\AST\Work\Tank Group 01\Facility Location Map.mxd 2/7/2022. Created by: Mia. Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



Legend

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

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

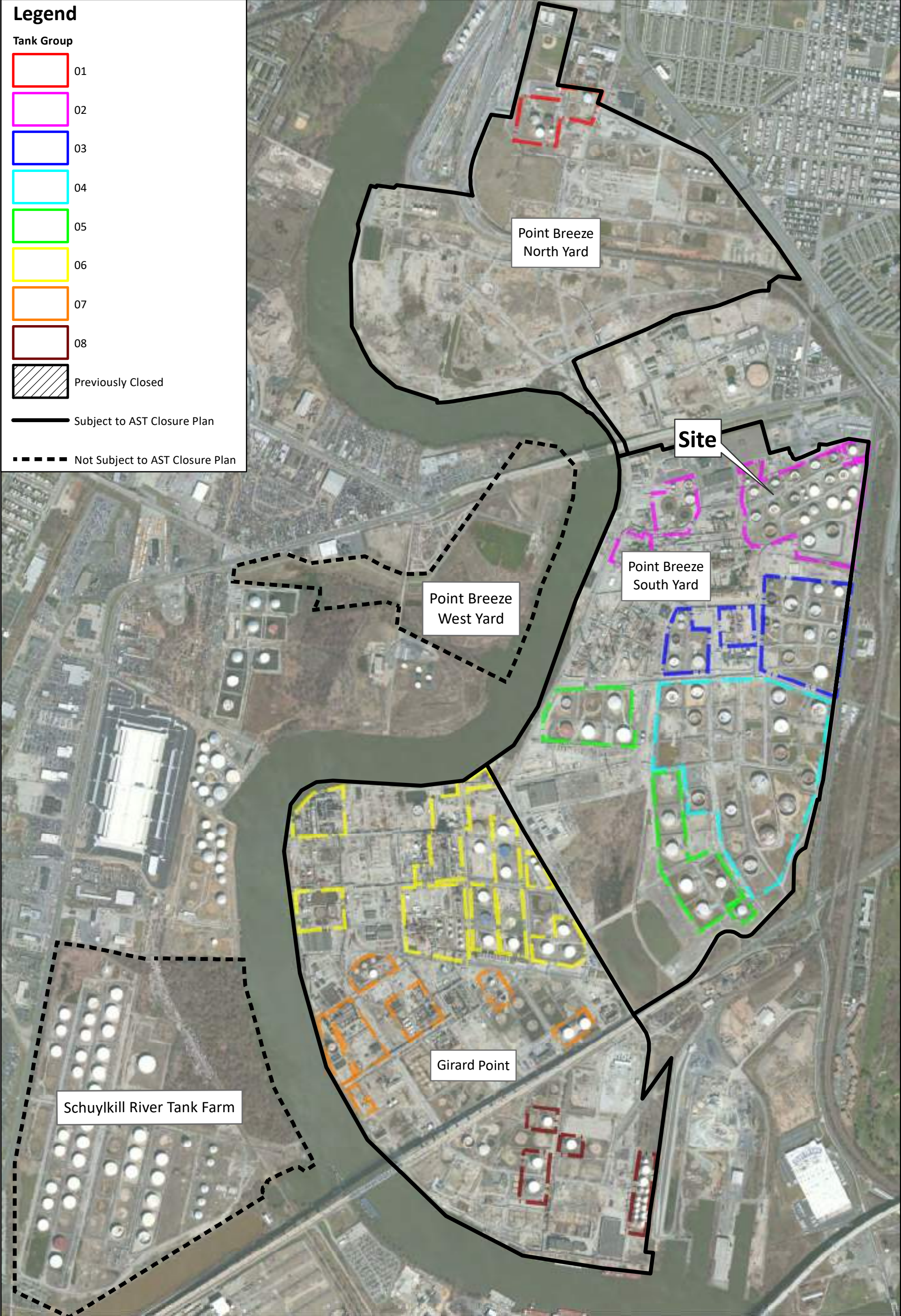
SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Facility Location
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	
		Figure 1

Legend

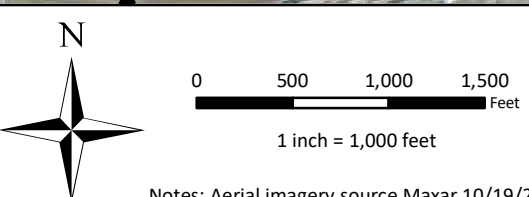
Tank Group

- 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 02\For Site Characterization Report\Figure 2 - Site Location.mxd 2/9/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Notes: Aerial imagery source Maxar 10/19/2019

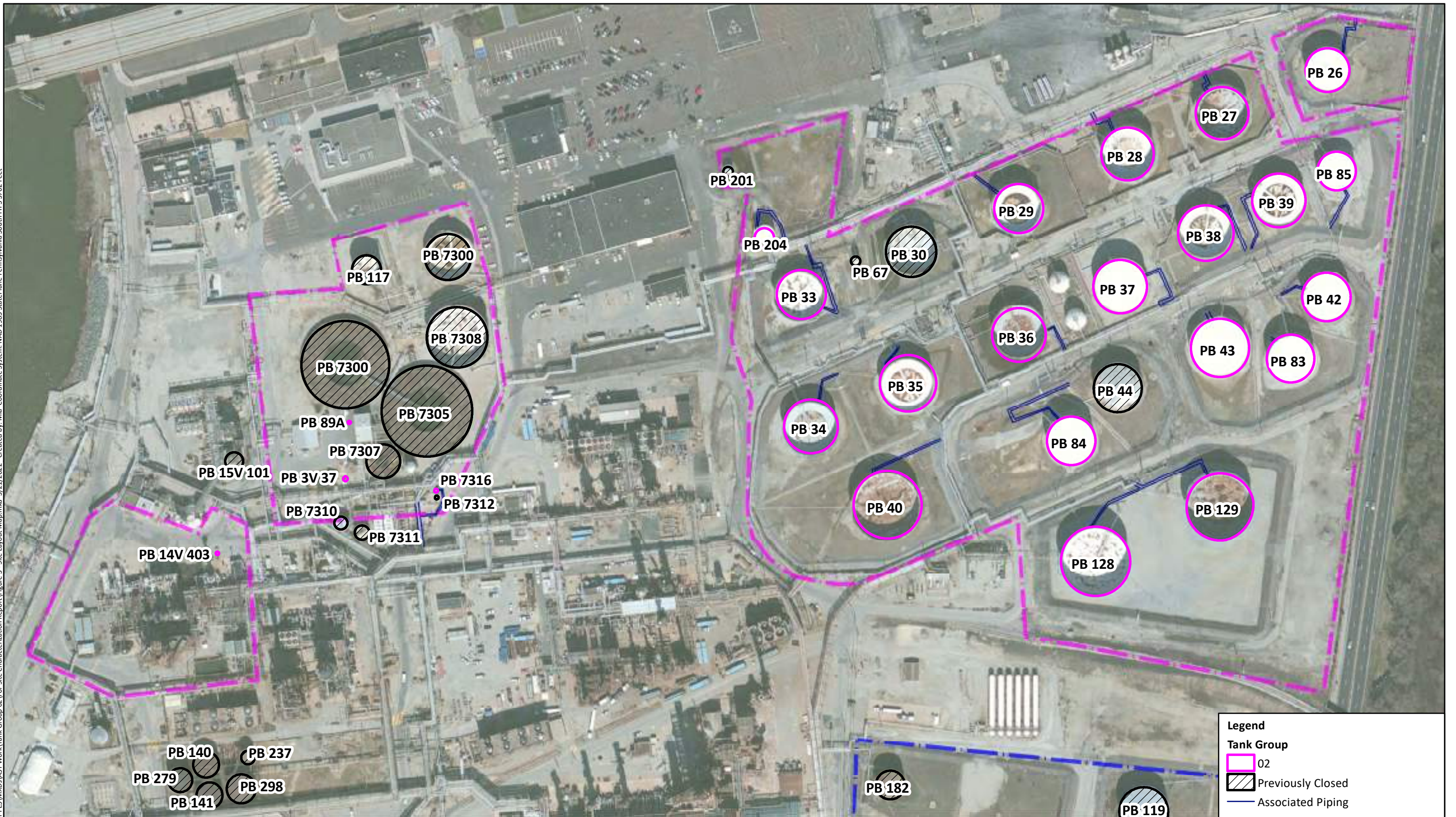
SAFETY FIRST

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

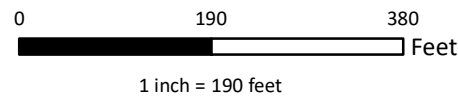
Site Location

Figure 2

File: N:\GIS\PI\044_001_PESRM-PES\MXDS\AST\Work\Tank_Group_02\For_Site_Characterization_Report\Figure_3_Site_Layout_Map.mxd, 3/21/2022, Created by: Mia, Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

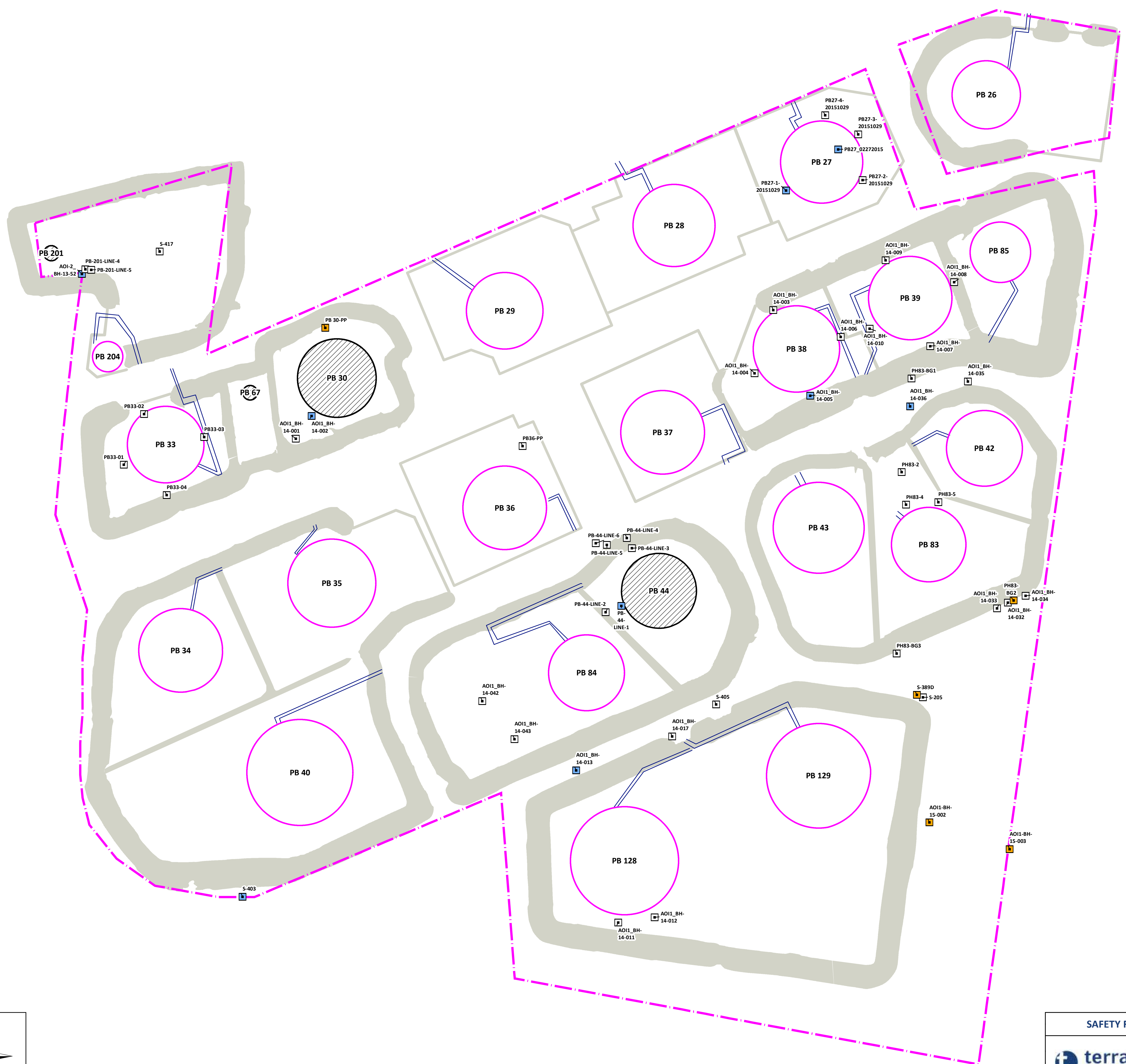


Notes:
Aerial imagery source Maxar 10/19/2019



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Layout Map Tank Group 02 Figure 3
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Projects\044_001_PESR\Map\Map\AST\Work\Tank_Group_02\Evergreen_Spatial_Distribution\02202015\Figure_4a - Historical Soil Sampling Results - Surface_Soil.mxd, 3/15/2022, Created by: Mia, Coordinate System: NAD 83, StatePlane: Pennsylvania South FIPS 3702 Feet



Legend

Soil Sample Location

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

Tank Group

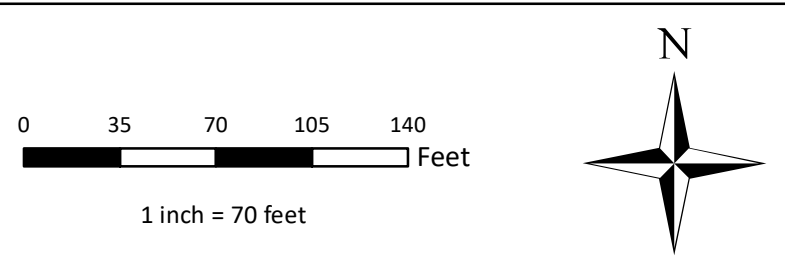
- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Historical Surface Soil Sampling Results Tank Group 02 Figure 4a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

File: N:\GIS\Projects\0401_001_PES\Map\ES\W04\AST\Work\Tank_Group_02\Fig_5_Soil_Characterization_Report\Figures_5_Soil_Sampling_Results.mxd 3/15/2022 Created by: Mia, Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Soil Sample Location

- Site Assessment
- Site Characterization
- Historical

Color Scheme for Identifying Exceedances

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

Tank Group

- 02
- Previously Closed

Other Features

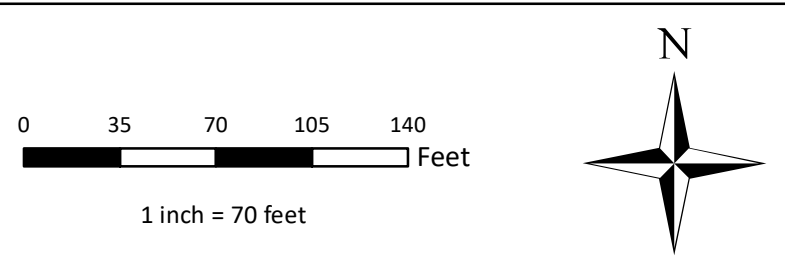
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Assessment, Site Characterization, and Historical Soil Sampling Results Tank Group 02
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	Figure 5

File: N:\GIS\Projects\044_001_PESRM\PE\W04\AST\Work\Tank_Group_02\20220309_Site_Characterization_MSC_DC\Drawings_Maps\Results\Chem\AOI2_BH13-80_Site_Characterization_MSC_DC\Drawings_Maps\Results\Chem\Benzene_Surfmag_3/15/2022_Created by: JD_Chester by: NITIAL_Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5709 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

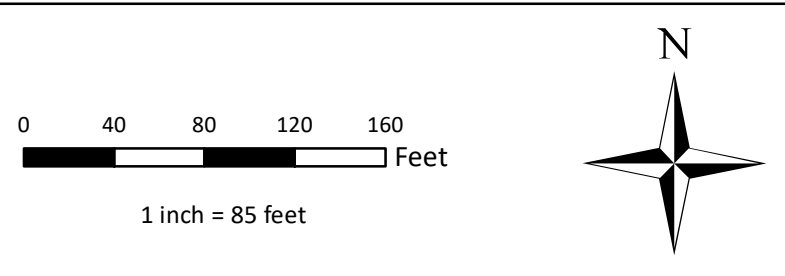
- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

Note
 - Sample location size symbolizes relative concentration

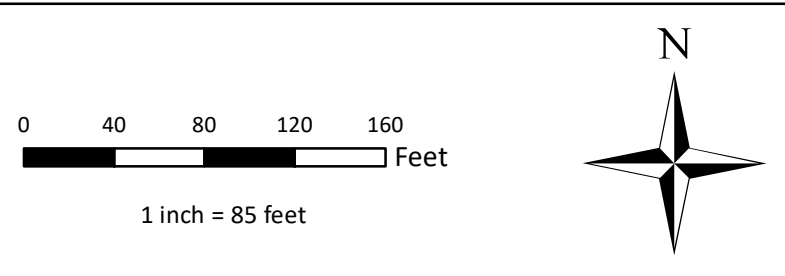
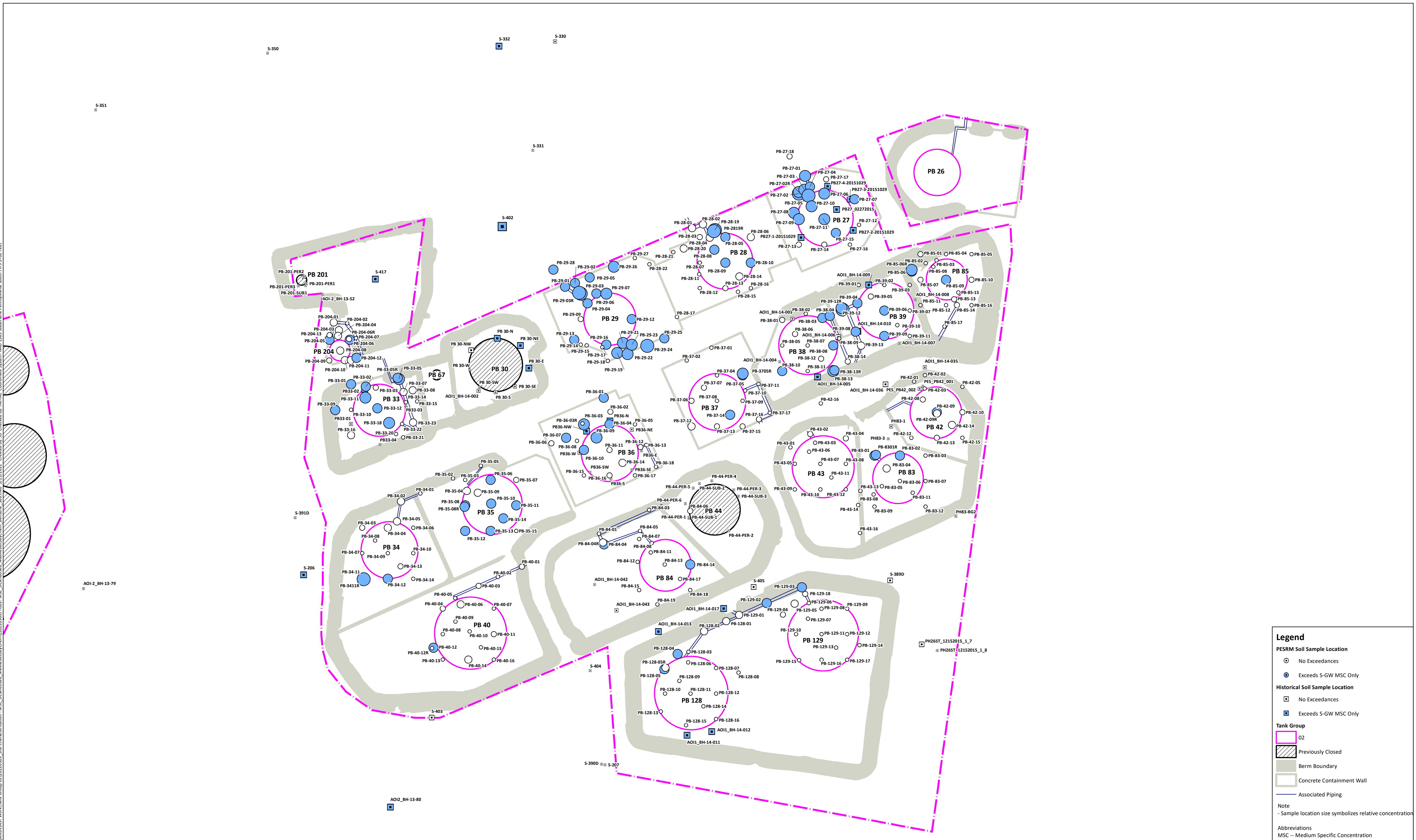
Abbreviations
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 02 (Benzene) Figure 6a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



File: N:\GIS\Projects\044_001_PESRM\RES\WDA\AST\Work\Tank_Group_02\20220309_Site_Characterization_MSC_DC\Drawings\MapResults\Chem_Benzene_Submit_3/15/2022_Created_by:JD Checked by:INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

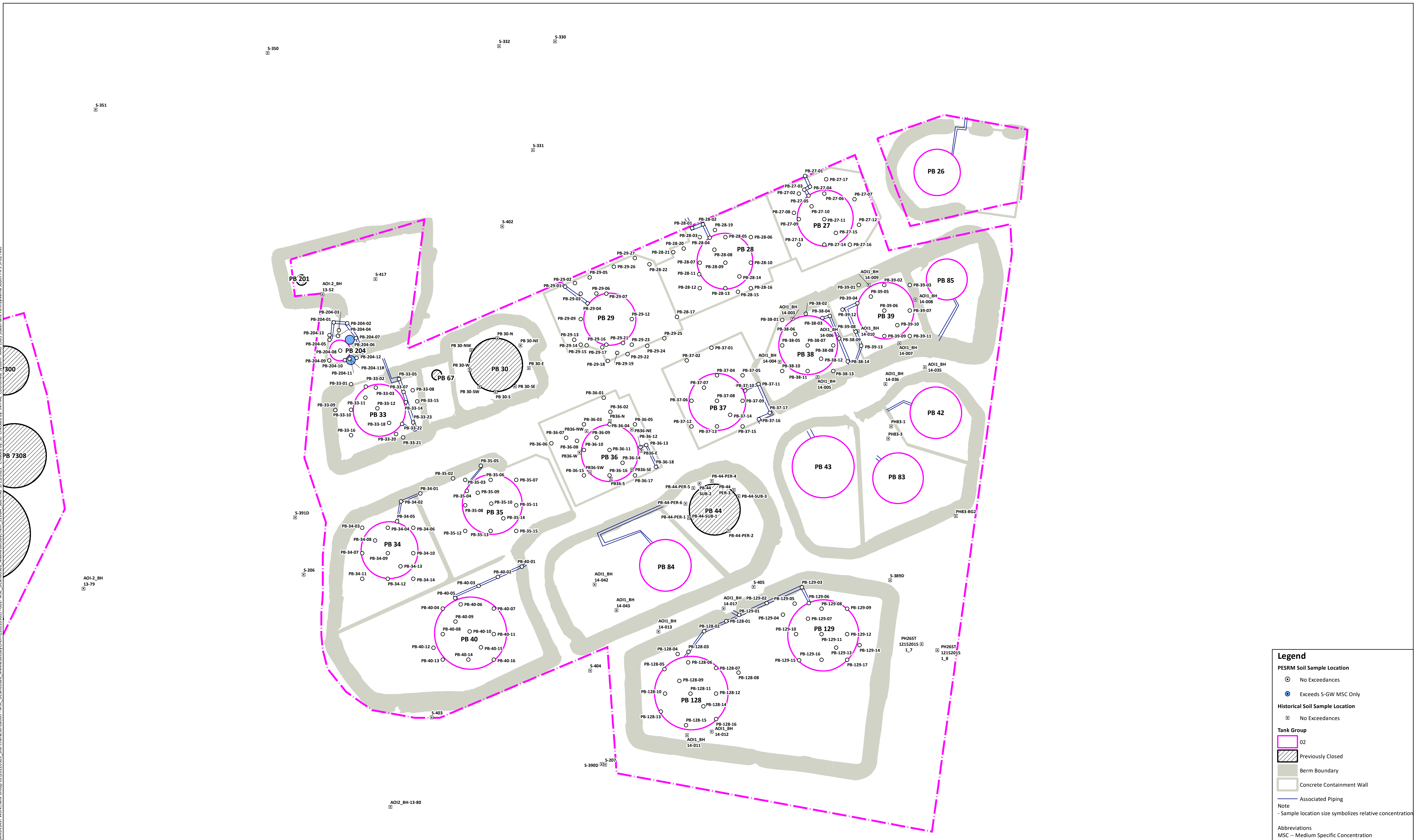
- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

Note
- Sample location size symbolizes relative concentration

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

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Benzene) Figure 6b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

File: N:\GIS\Proj\0401_001_PESRM\PE\W03\AST\Work\Tank Group 02\20220309_Site Characterization - MSC_D\Cardisled_MapsResults\Chem\12DBA_Sub.mxd 3/15/2022 Created by: ID Checked by: NITIAI Coordinate System: NAD 83 Spheroid: Pennsylvania South IPS 3702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

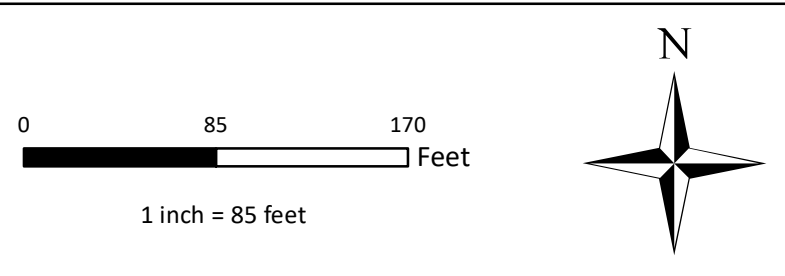
- No Exceedances

Tank Group

- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

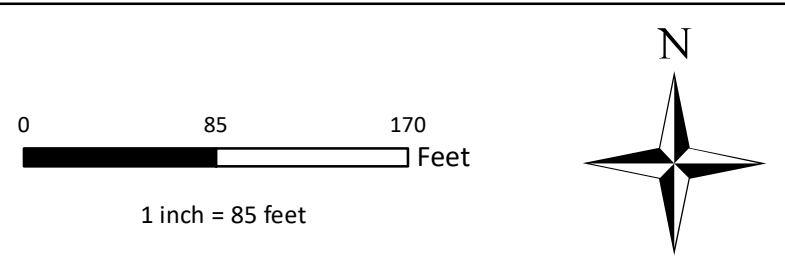
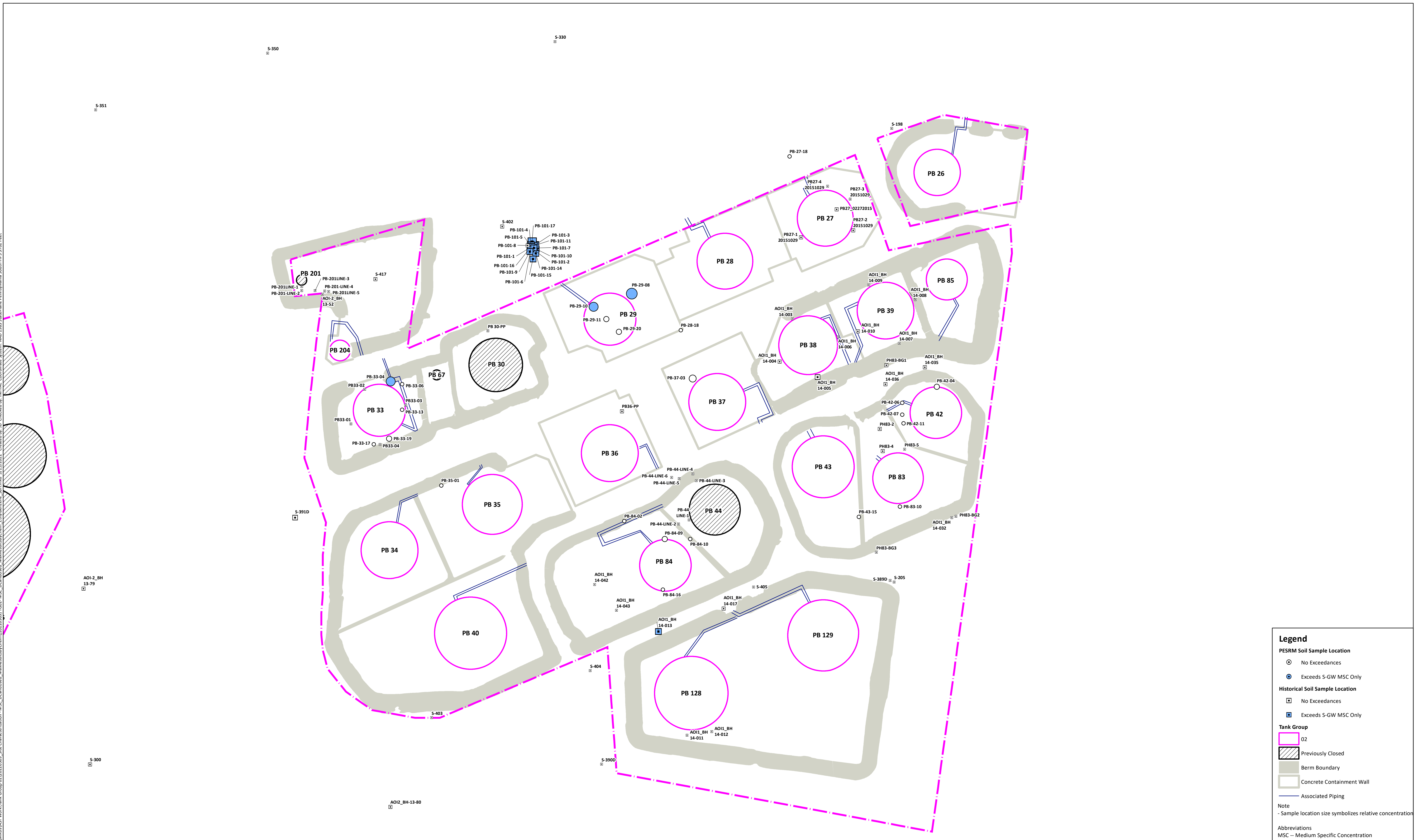
Note
- Sample location size symbolizes relative concentration

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 02 (1,2-Dibromoethane) Figure 7b
	PROJECT: Aboveground Storage Tank Closure PROJECT NUMBER: P044.001.002	

File: N:\GIS\Proj\044_001_PESRM\PE\W04\AST Work\Tank Group 02\20220309_Site Characterization - MSC_D\Cardisled_MarResultsByChem\022020309_TG02_MSC_D\Cardisled_MarResultsByChem_Ethylbenzene_Surf.mod 3/15/2022 Created by: JD Checked by: INITIAL Coordinate System: NAD 83\StatePlane Pennsylvania South FIPS 3702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed

Site Features

- Berm Boundary
- - - Concrete Containment Wall
- Associated Piping

Note

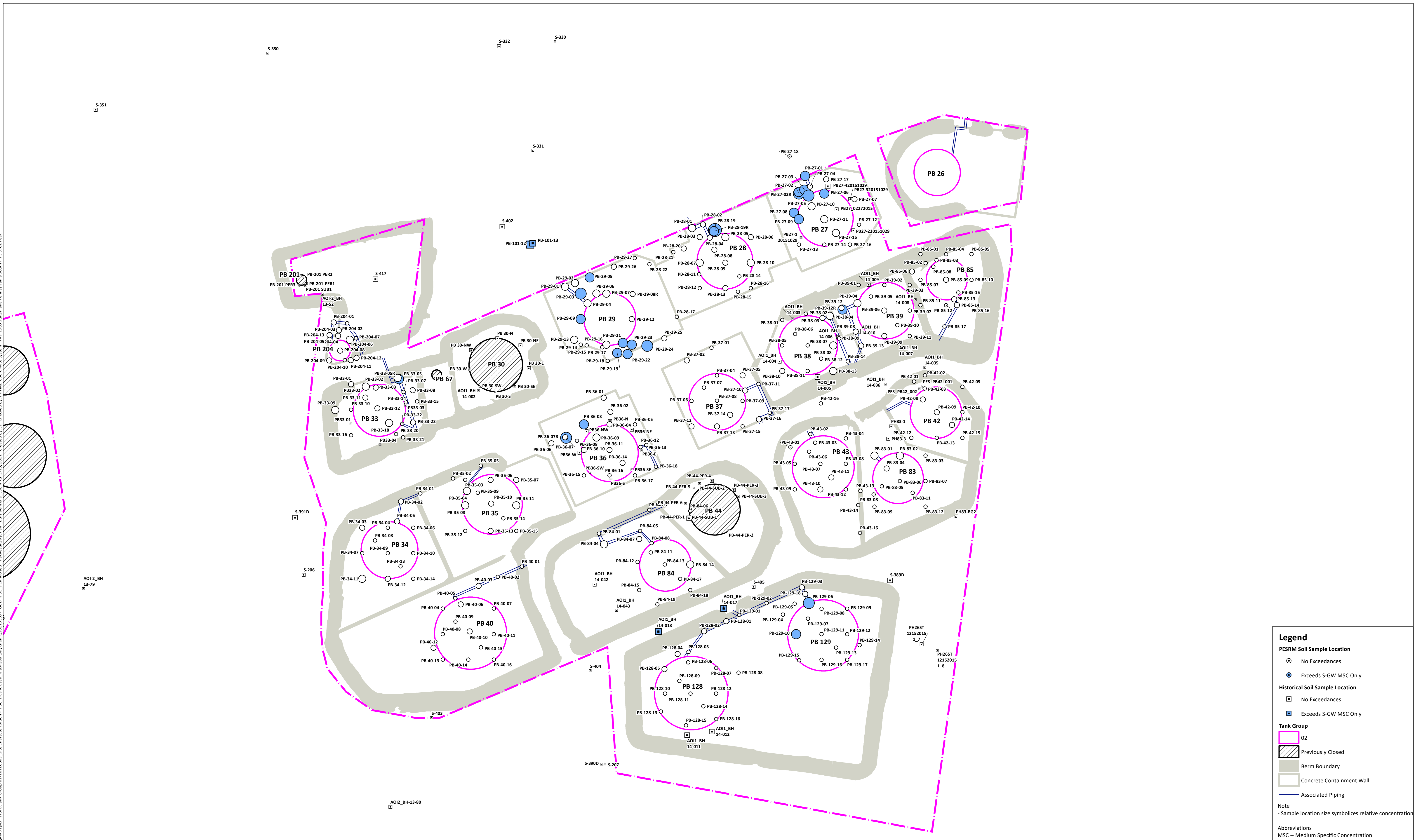
- Sample location size symbolizes relative concentration

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 02 (Ethylbenzene) Figure 8a
	PROJECT: Aboveground Storage Tank Closure PROJECT NUMBER: P044.001.002	

File: N:\GIS\Projects\044_001_PESRM\PE\W04\AST\Work\Tank_Group_02\20220309_Site_Characterization_MSC_DC\Drawings\MapResults\Chem_Ethylbenzene_Sub.mxd 3/15/2022 Created by: JD Checked by: INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3709 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

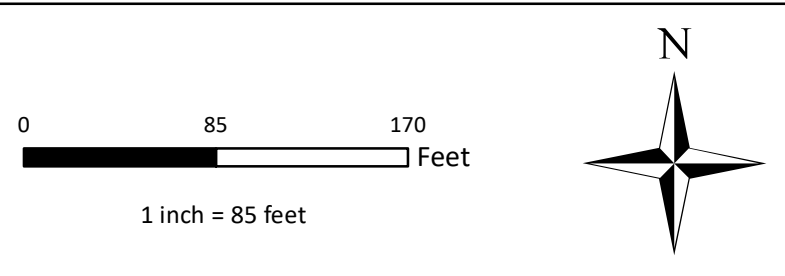
- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed
- ▭ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

Note
 - Sample location size symbolizes relative concentration

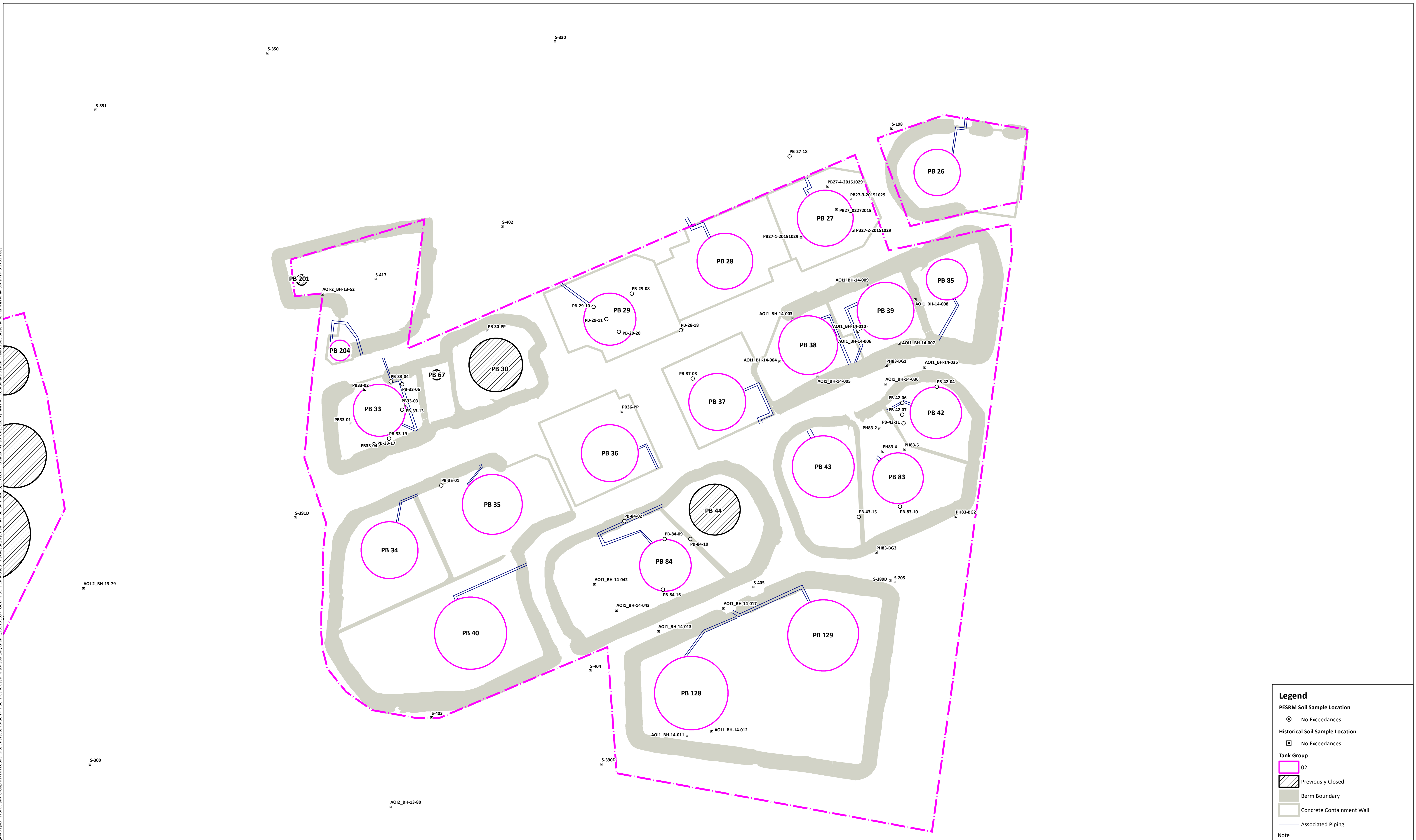
Abbreviations
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Ethylbenzene) Figure 8b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



File: N:\GIS\Projects\044_001_PESRM\PE\W003\AST\Work\Tank_Group_02\20220309_Site_Characterization_MSC_DC\Drawings_Maps\Results\Chem\Map_Results\Chem_VTBE_Surf\mod_3/29/2022_Created_by:JD_Checkedby:INITIAL_Coordinate_System: NAD 83\StatePlane_Pennsylvania_South_FPS_3702_Feet



Legend

- PESRM Soil Sample Location
 - No Exceedances
- Historical Soil Sample Location
 - No Exceedances
- Tank Group
 - 02
 - ▨ Previously Closed
 - ▭ Berm Boundary
 - ▭ Concrete Containment Wall
 - Associated Piping

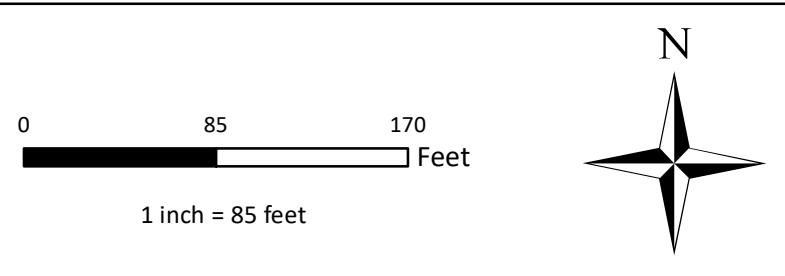
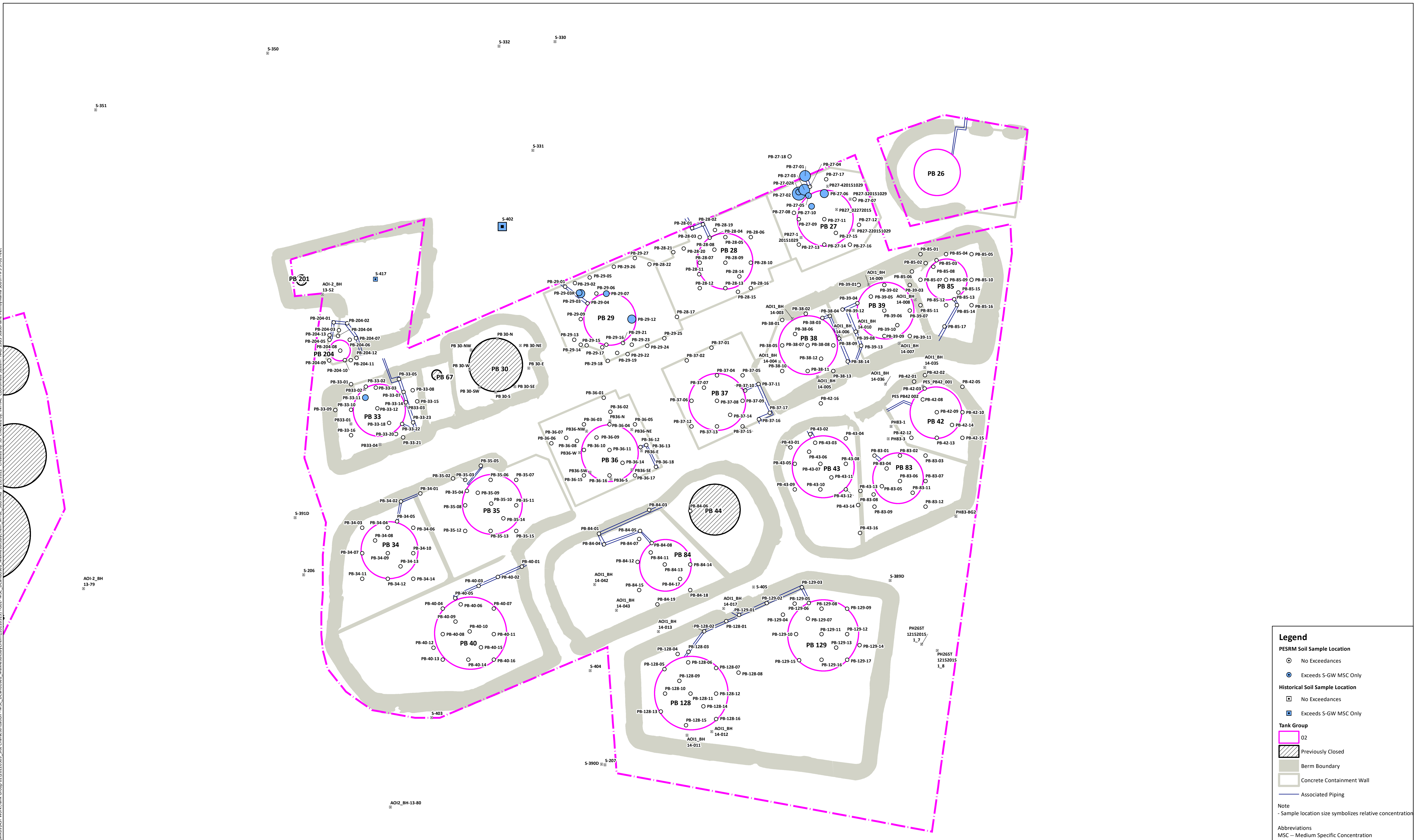
Note
 - Sample location size symbolizes relative concentration

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 02 (Methyl tert-butyl ether) Figure 9a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

0 85 170 Feet

1 inch = 85 feet

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Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

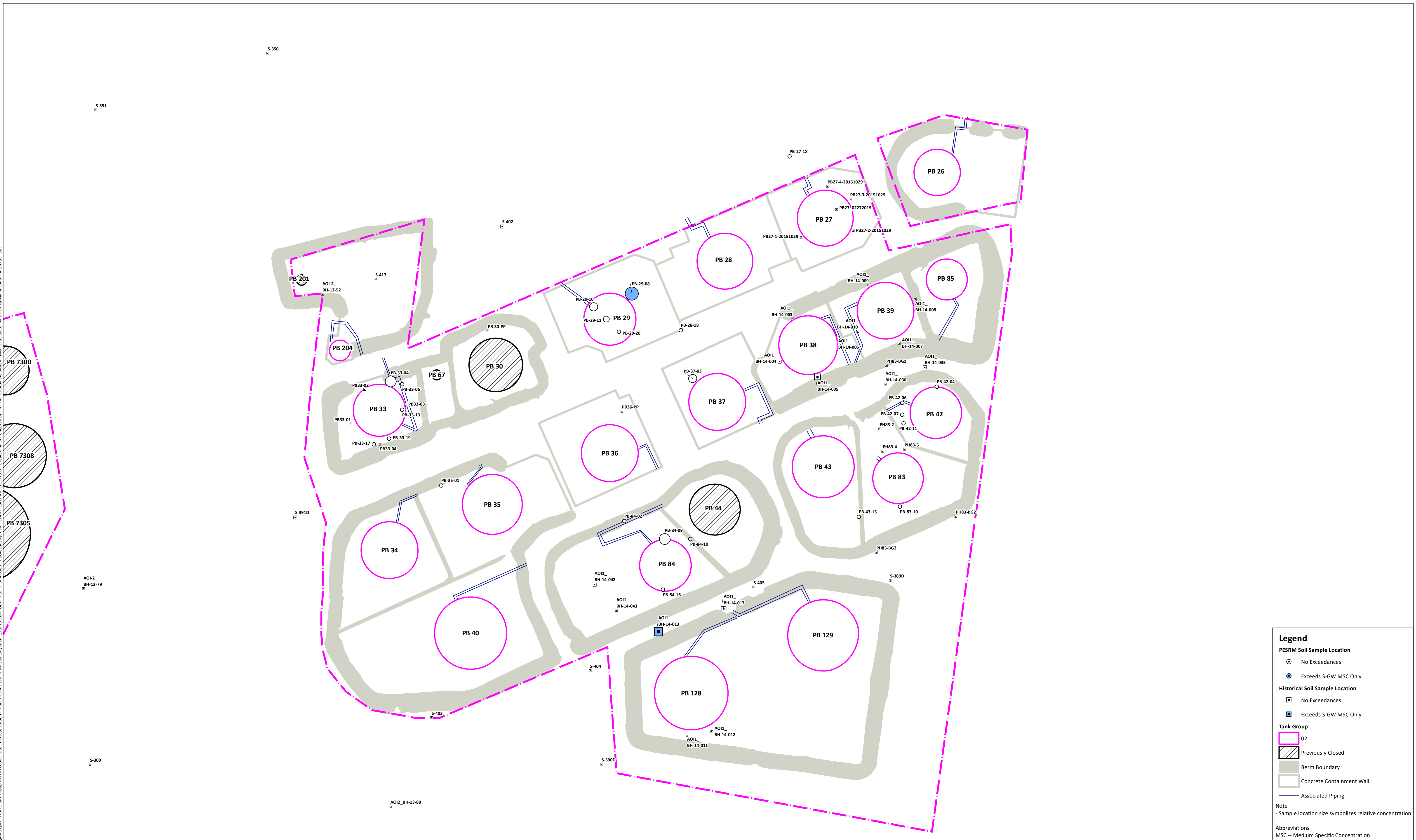
- 02
- ▨ Previously Closed
- ▭ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

Note
- Sample location size symbolizes relative concentration

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

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Methyl tert-butyl ether) Figure 9b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

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Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

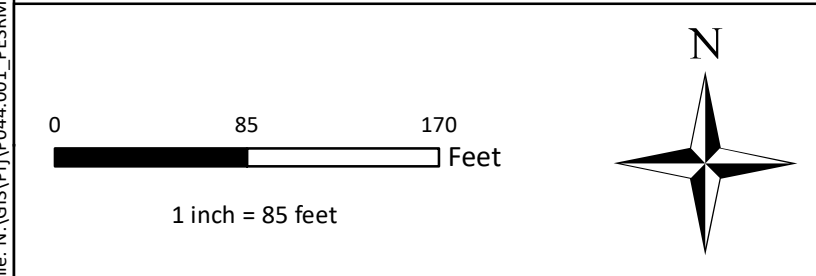
- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed
- ▬ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

Note
- Sample location size symbolizes relative concentration

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

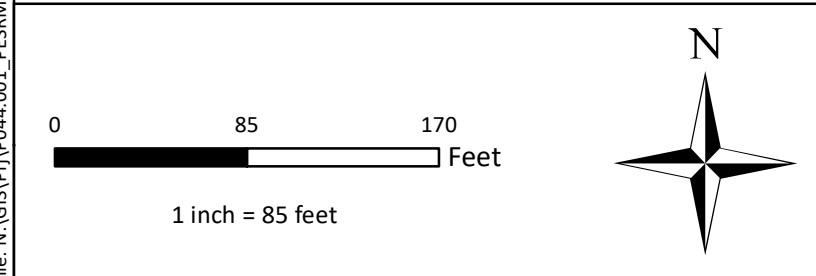
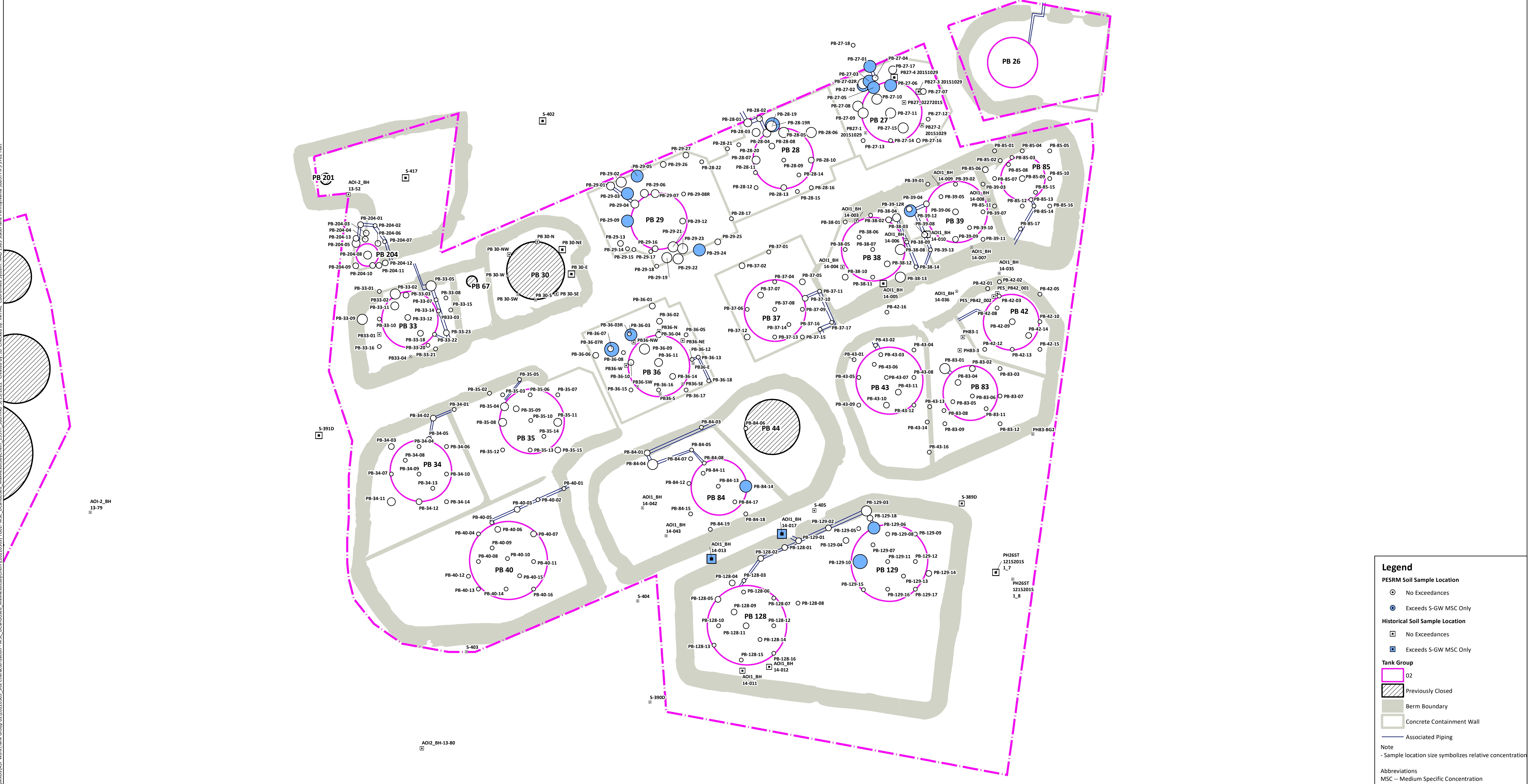


	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 02 (1,2,4-Trimethylbenzene) Figure 10a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

File: N:\GIS\Projects\1044_001_PESRM\PE\W03\AST Work\Tank Group 02\20220309_Site Characterization - MSC_D\Cardinalized_Maps\Results\Chem\13701_Submod_3\15/2022_Created by: JD_Chesterby: INITIAL_Coordinate System: NAD 83\StatePlane Pennsylvania South FIPS 3702 Feet

S-351

S-350



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

Note
- Sample location size symbolizes relative concentration

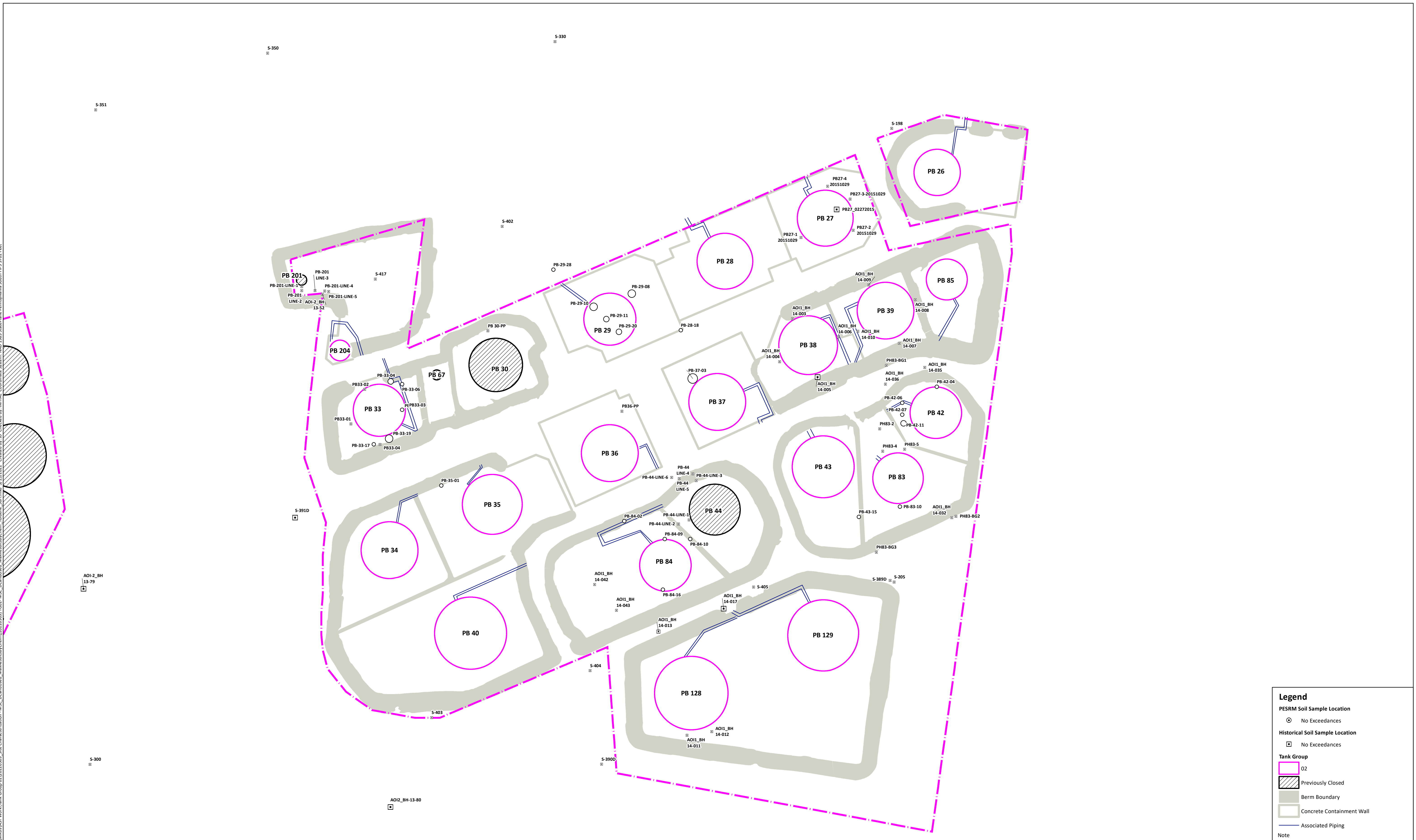
Abbreviations
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (1,3,5-Trimethylbenzene) Figure 11b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



S-388D

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Legend

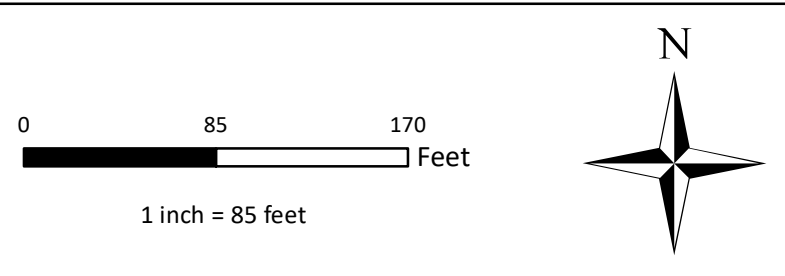
PESRM Soil Sample Location
 ○ No Exceedances

Historical Soil Sample Location
 □ No Exceedances

Tank Group
 □ O2
 ▨ Previously Closed

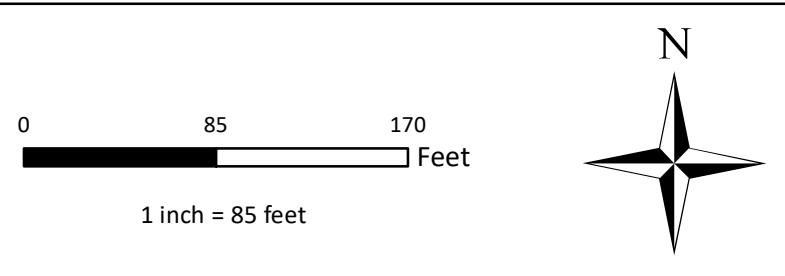
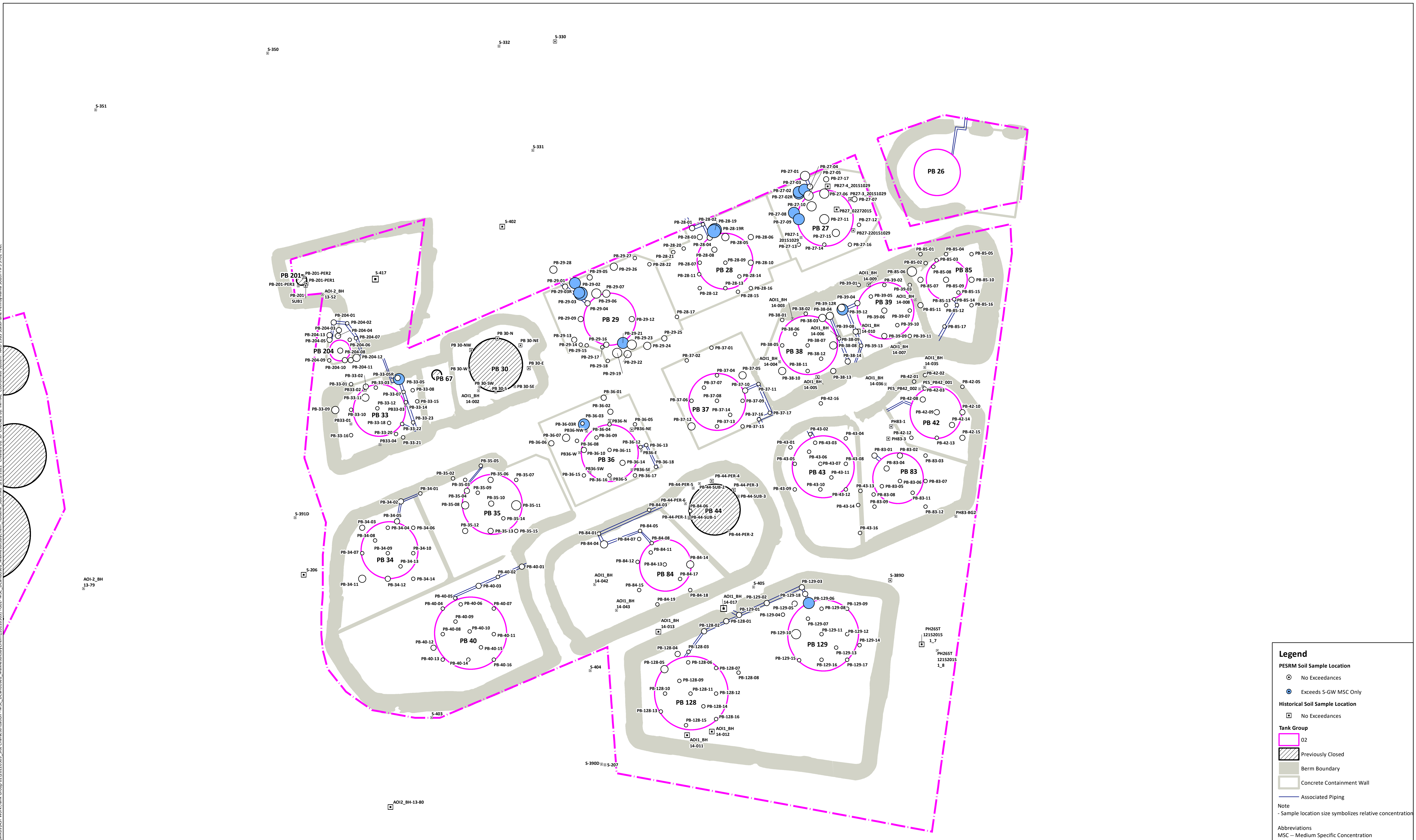
Other Features
 — Berm Boundary
 — Concrete Containment Wall
 — Associated Piping

Note
 - Sample location size symbolizes relative concentration



	SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group O2 (Toluene) Figure 12a
		PROJECT: Aboveground Storage Tank Closure	
		PROJECT NUMBER: P044.001.002	

File: N:\GIS\Projects\044_001_PESRM\PE\W04\AST Work\Tank Group 02\20220309_Site Characterization - MSC - DC\Drawings\MapResults\Chem\Toluene_Sub.mxd 3/15/2022 Created by: JD Checked by: INITIAL Coordinate System: NAD 83 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances

Tank Group

- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

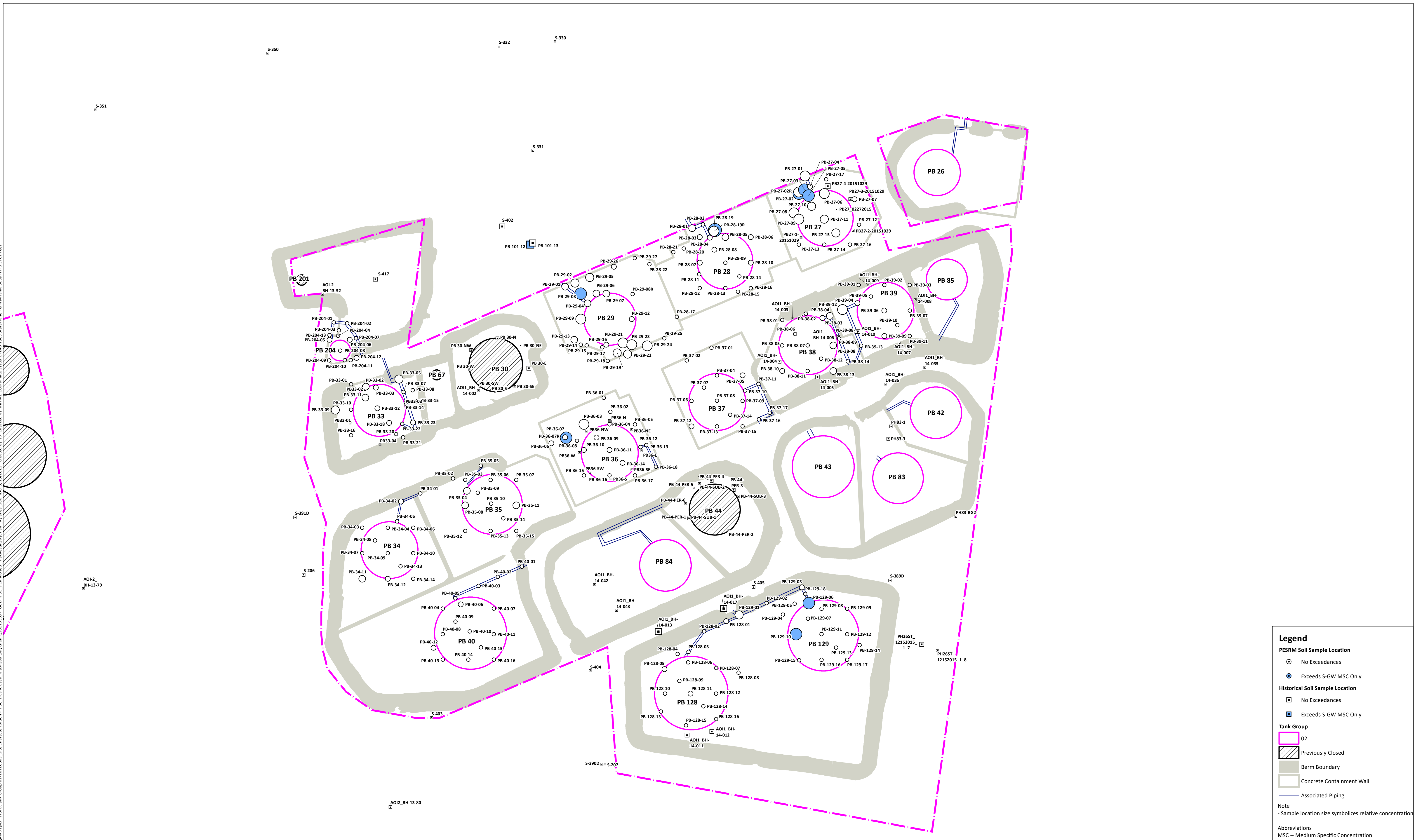
Note
- Sample location size symbolizes relative concentration

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 02 (Toluene) Figure 12b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



File: N:\GIS\Projects\PE_SRM\PE_SRM\AST Work\Tank Group 02\20220309_Site Characterization - MSC - DC\Drawings\MapResults\Chem\Xylenes_Sub.mxd 3/15/2022 Created by: ID Checked by: INITIAL Coordinates System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

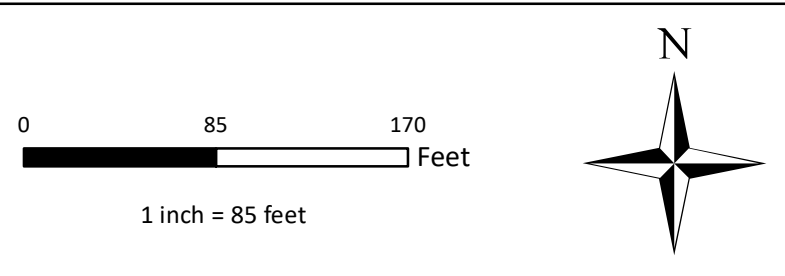
- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed
- ▭ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

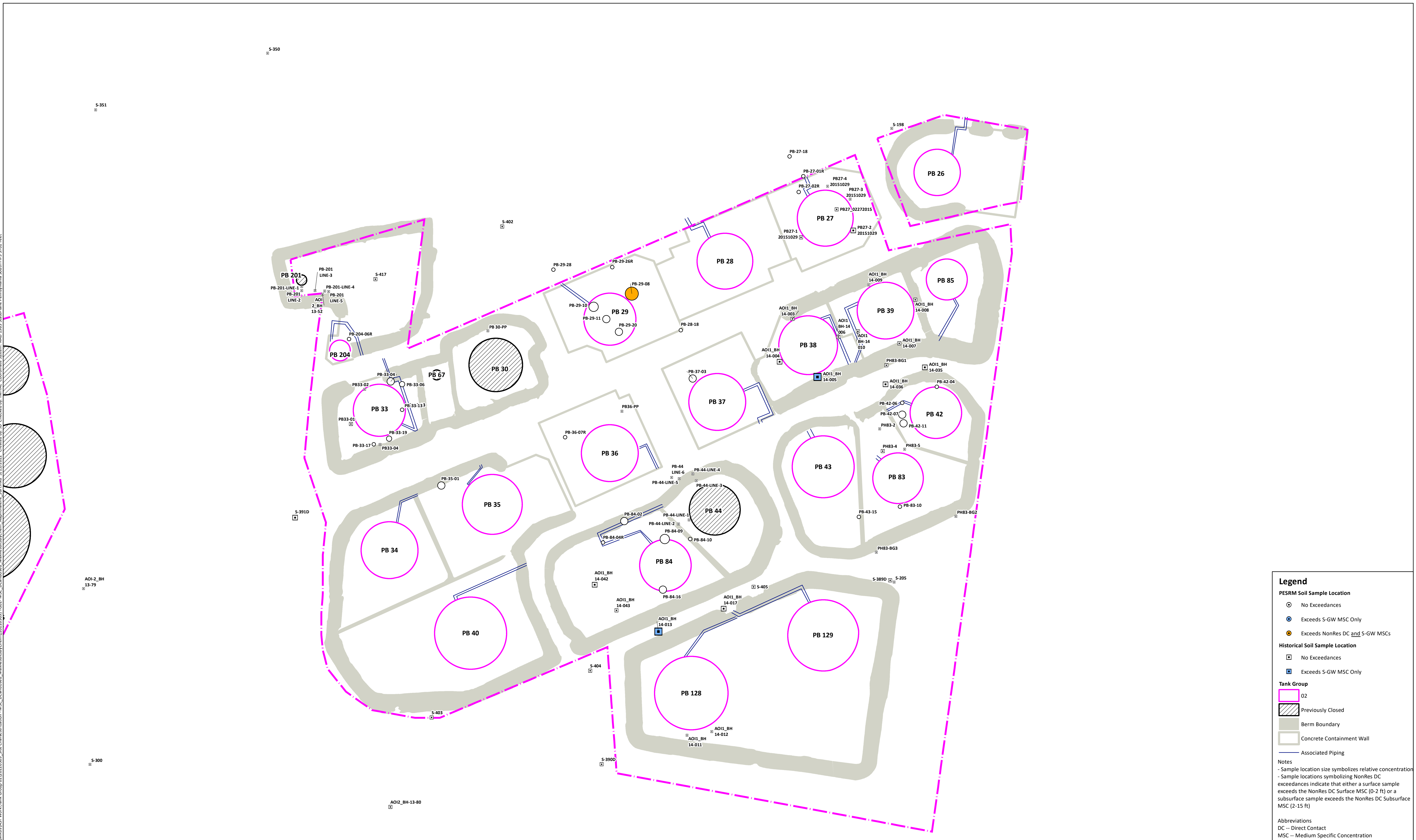
Note
 - Sample location size symbolizes relative concentration

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Xylenes (total)) Figure 13b
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Projects\044_001_PESRM\PE\W04\AST\Work\Tank_Group_02\20220309_Site_Characterization_MSC_DC\Cardised_Maps\Results\Chem\Naphthalene_Surfmod_3/15/2022_Created_by:INTIAL_CoordinateSystem: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

PESRM Soil Sample Location

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

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

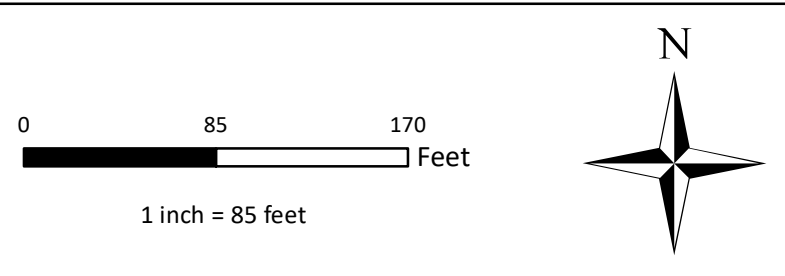
- 02
- ▨ Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

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 Subsurface MSC (2-15 ft)

Abbreviations

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 02 (Naphthalene) Figure 14a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



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Legend

PESRM Soil Sample Location

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

Historical Soil Sample Location

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

Tank Group

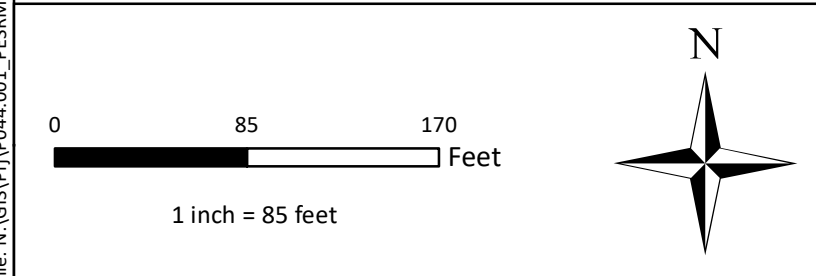
- 02
- Previously Closed
- Berm Boundary
- Concrete Containment Wall
- Associated Piping

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 Subsurface MSC (2-15 ft)

Abbreviations

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Naphthalene) Figure 14b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

S-351

S-350

S-402

S-417

S-391D

S-206

AOI2_BH 13-79

AOI2_BH-13-80

S-404

S-390D

S-405

S-389D

S-388D

PB 26

PB 27

PB 28

PB 29

PB 30

PB 33

PB 34

PB 35

PB 36

PB 37

PB 38

PB 39

PB 40

PB 42

PB 43

PB 44

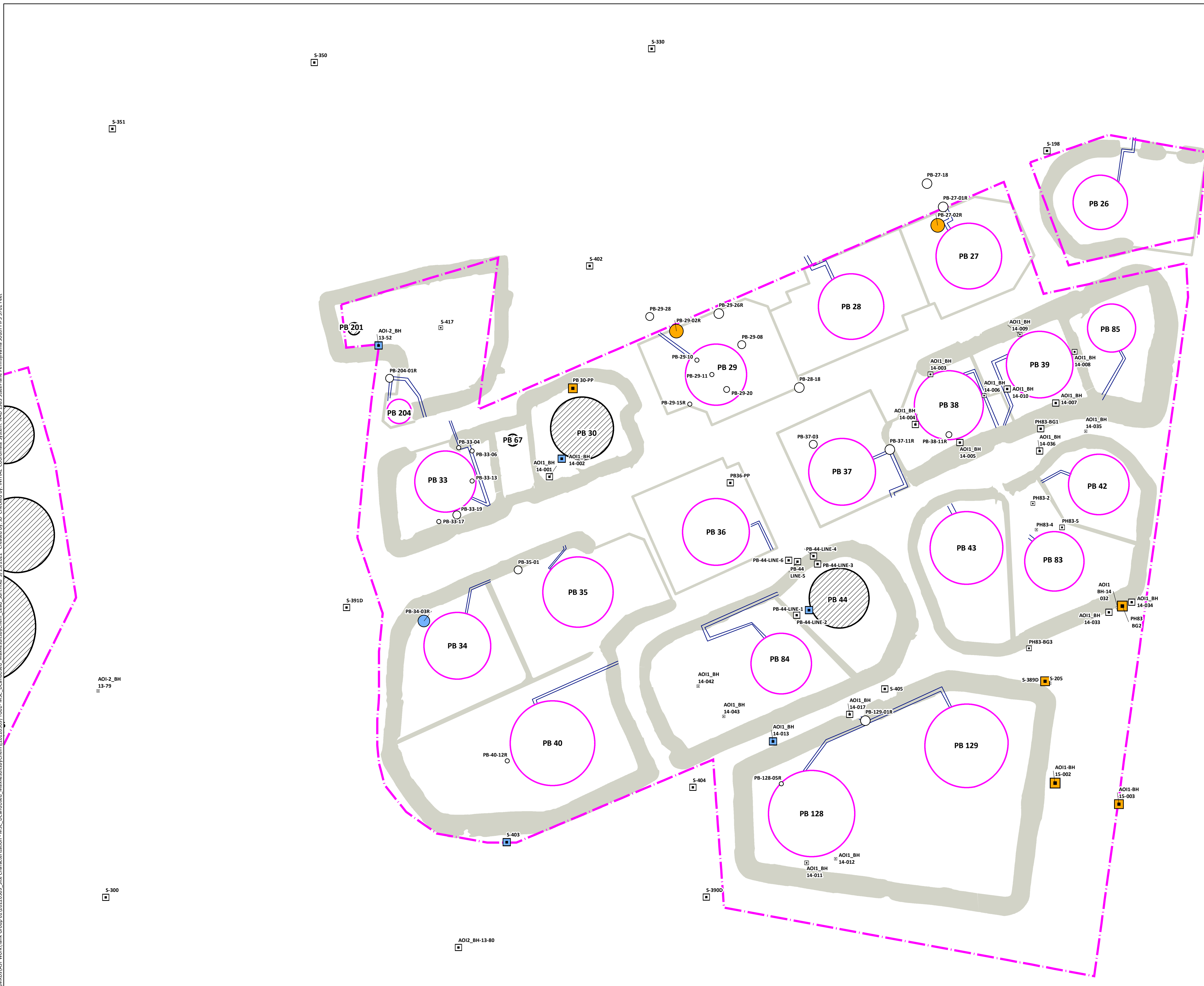
PB 83

PB 85

PB 128

PB 129

File: N:\GIS\Proj\044_001_PESRM\PE\W04\AST Work\Tank Group 02\20220309_Site Characterization - MSC - DC\Cardless_Maps\Results\Chem\Lead_Surf.mxd 3/15/2022 Created by: INTIAL_Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

PESRM Soil Sample Location

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

Historical Soil Sample Location

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

Tank Group

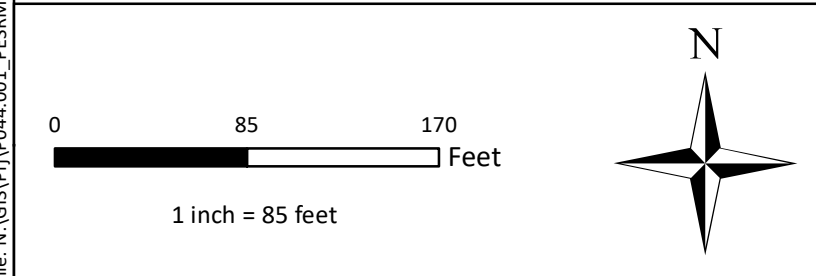
- 02
- ▨ Previously Closed
- ▭ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

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 Subsurface MSC (2-15 ft)

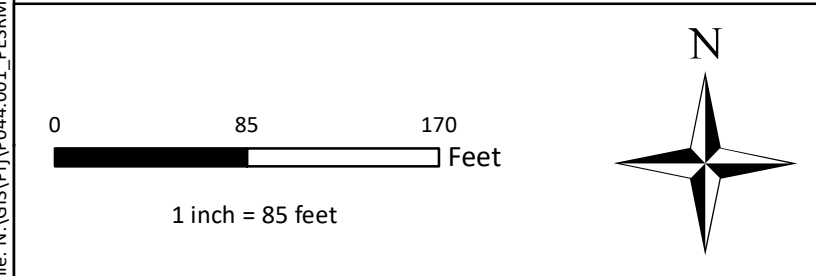
Abbreviations

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



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Surface Soil Sampling Results Tank Group 02 (Lead) Figure 15a
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

File: N:\GIS\Proj\044_001_PESRM\PE\W03\AST Work\Tank Group 02\20220309_Site Characterization - MSC - DC\Drawings\MapResults\Chem\Lead_Sum.mxd, 3/15/2022, Created by: INTIAL, Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5702 Feet



Legend

PESRM Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Historical Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only

Tank Group

- 02
- ▨ Previously Closed

Other Symbols

- ▭ Berm Boundary
- ▭ Concrete Containment Wall
- Associated Piping

Note

- Sample location size symbolizes relative concentration

Abbreviations

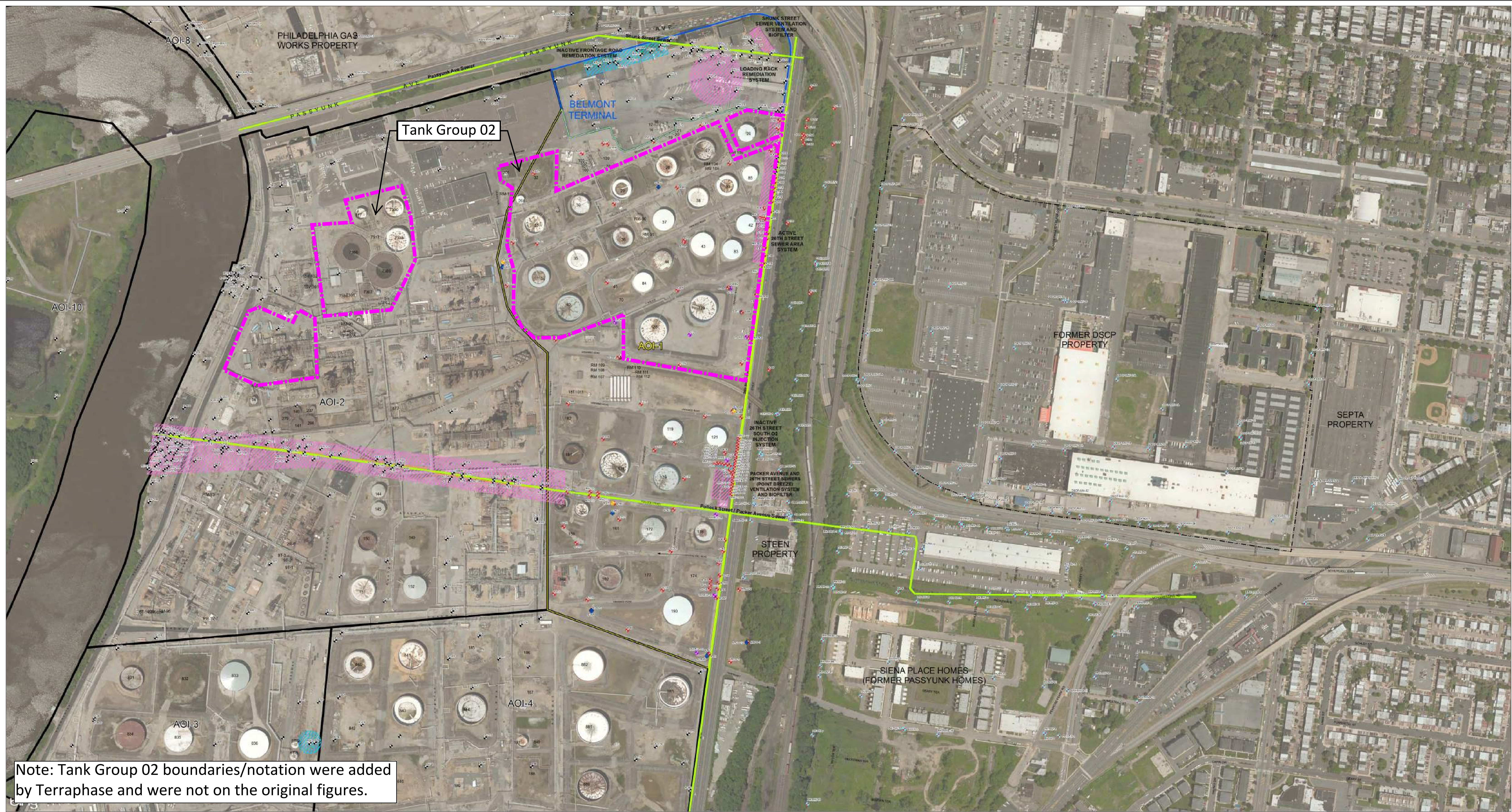
- MSC -- Medium Specific Concentration
- S-GW -- Soil-to-Groundwater

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Subsurface Soil Sampling Results Tank Group 02 (Lead) Figure 15b
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

Appendix A

Select Figures from the AOI-1 and AOI-2 RIRs



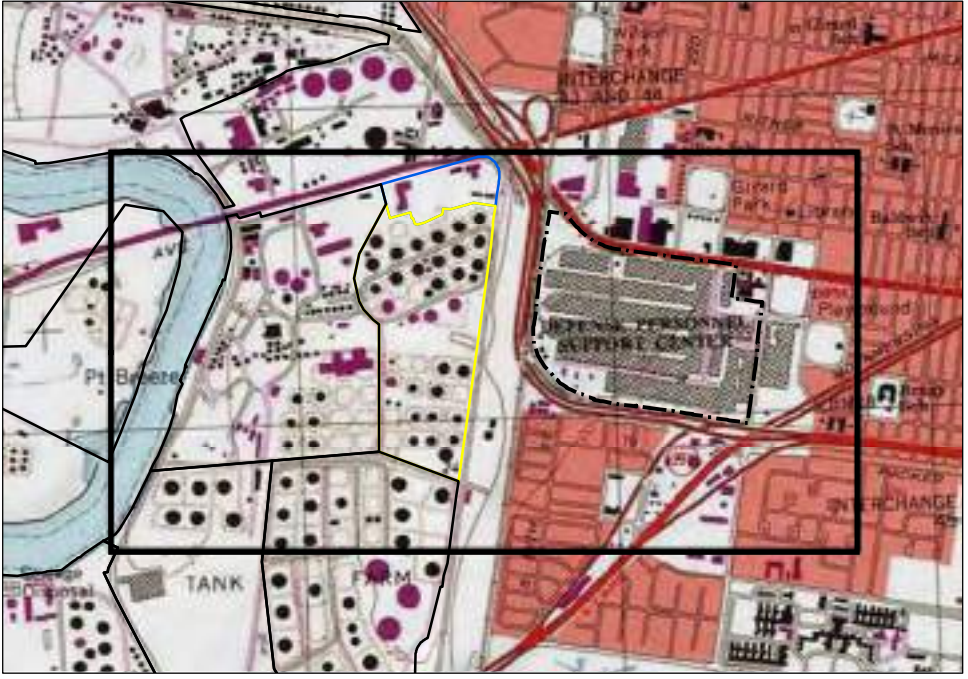
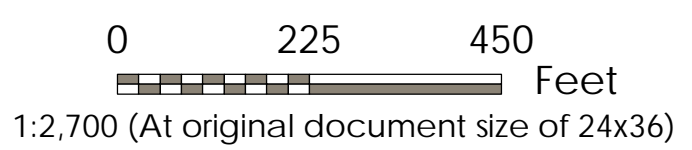


Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



Legend

- OFFSITE MONITORING WELL - FORMER DSCP, PASSYUNK HOMES, STEEN, AND CSX PROPERTIES
- FACILITY MONITORING WELL (AREAS OUTSIDE OF AOI 1)
- AOI 1 MONITORING WELL (INCLUDING A PORTION OF OFFSITE WELLS MONITORED BY STANTEC)
- HYDROSTRATIGRAPHIC UNIT
 - ◆ UNCONFINED AQUIFER
 - ◆ LOWER AQUIFER
 - ◆ MIDDLE CLAY UNIT AQUITARD
 - ◆ UNKNOWN SCREEN SETTING OR SCREENED IN FILLED STREAM VALLEY
 - POLLOCK STREET HORIZONTAL WELL (AOI 2)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- REMEDIATION SYSTEMS DESIGNATED AS CURRENTLY ACTIVE
- REMEDIATION SYSTEMS DESIGNATED AS INACTIVE
- AREA OF INTEREST (AOI) 1
- AREA OF INTEREST (AOI) 2
- BELMONT TERMINAL
- AREA OF INTEREST (AOI)
- FORMER DEFENSE SUPPLY CENTER PHILADELPHIA (DSCP) PROPERTY

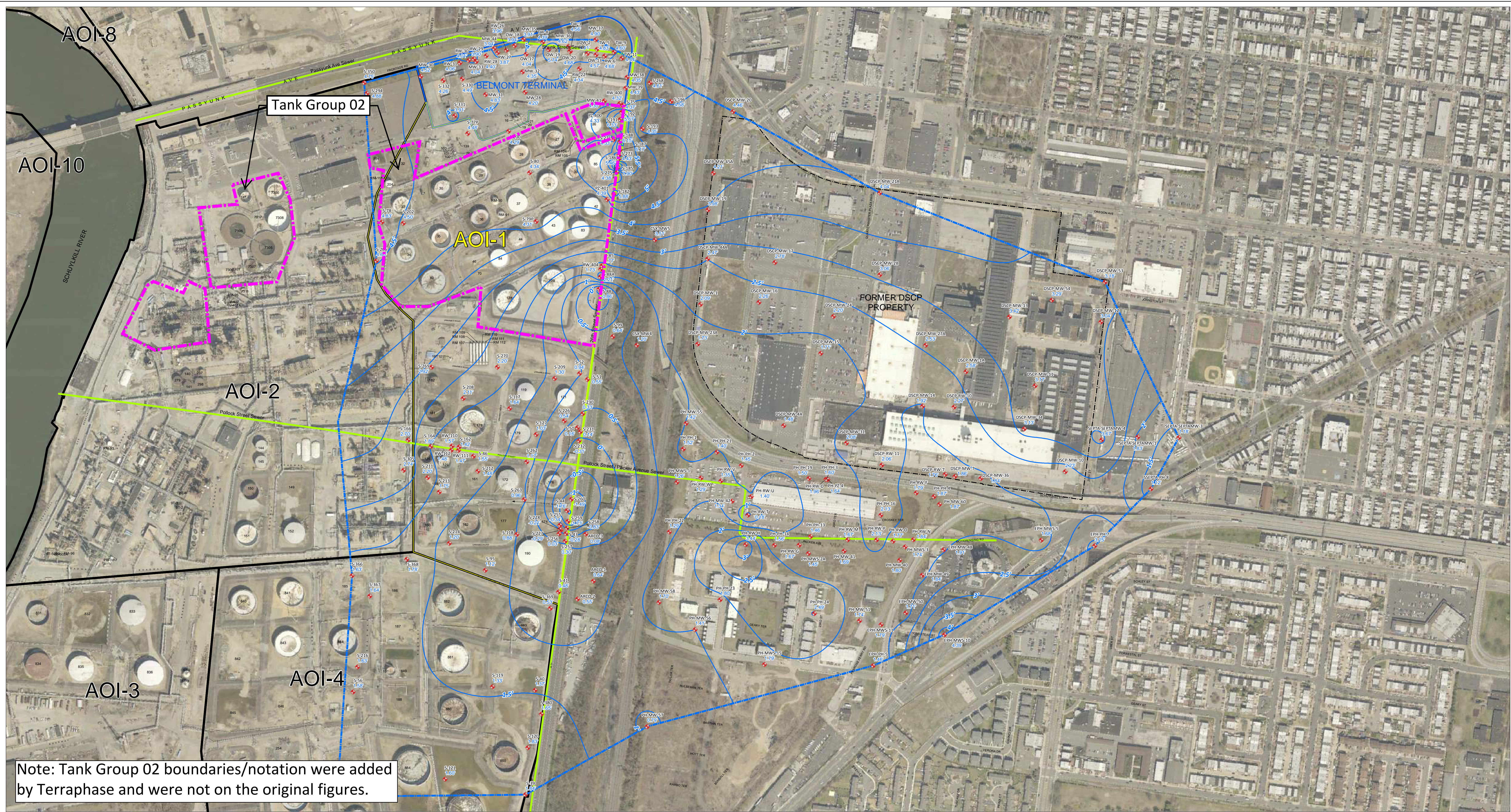


Project Location
 City of Philadelphia, Pennsylvania
 213402434
 Prepared by GWC on 2/3/2016
 Technical Review by JKD on 2/3/2016
 Independent Review by ADK on 3/8/2016

Client/Project
 EVERGREEN RESOURCES MANAGEMENT OPERATIONS
 PHILADELPHIA REFINERY COMPLEX
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Figure No.
 1-2
 Title
 AREA OF INTEREST (AOI) 1 SITE PLAN

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Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

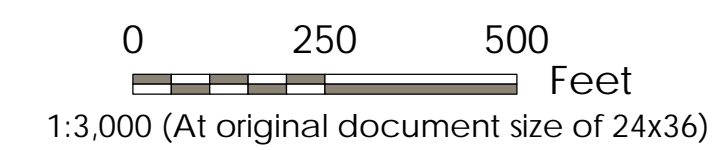


Legend

- ◆ WELL UTILIZED IN CONTOURING
- 2015 WATER-TABLE ELEVATION (ft NAVD 88)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- LIMITS OF UNCONFINED AQUIFER WELL CONTROL
- AREA OF INTEREST (AOI) 1
- BELMONT TERMINAL
- AREA OF INTEREST (AOI)
- FORMER DSCP PROPERTY

Notes

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Sources: Stantec and Defense Logistics Agency (DLA)
3. Labels denote ground-water 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 Defense Logistics Agency. 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: PASDA 2014 & Copyright © 2013 National Geographic Society. i-cubed Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



Project Location
 City of Philadelphia,
 Pennsylvania

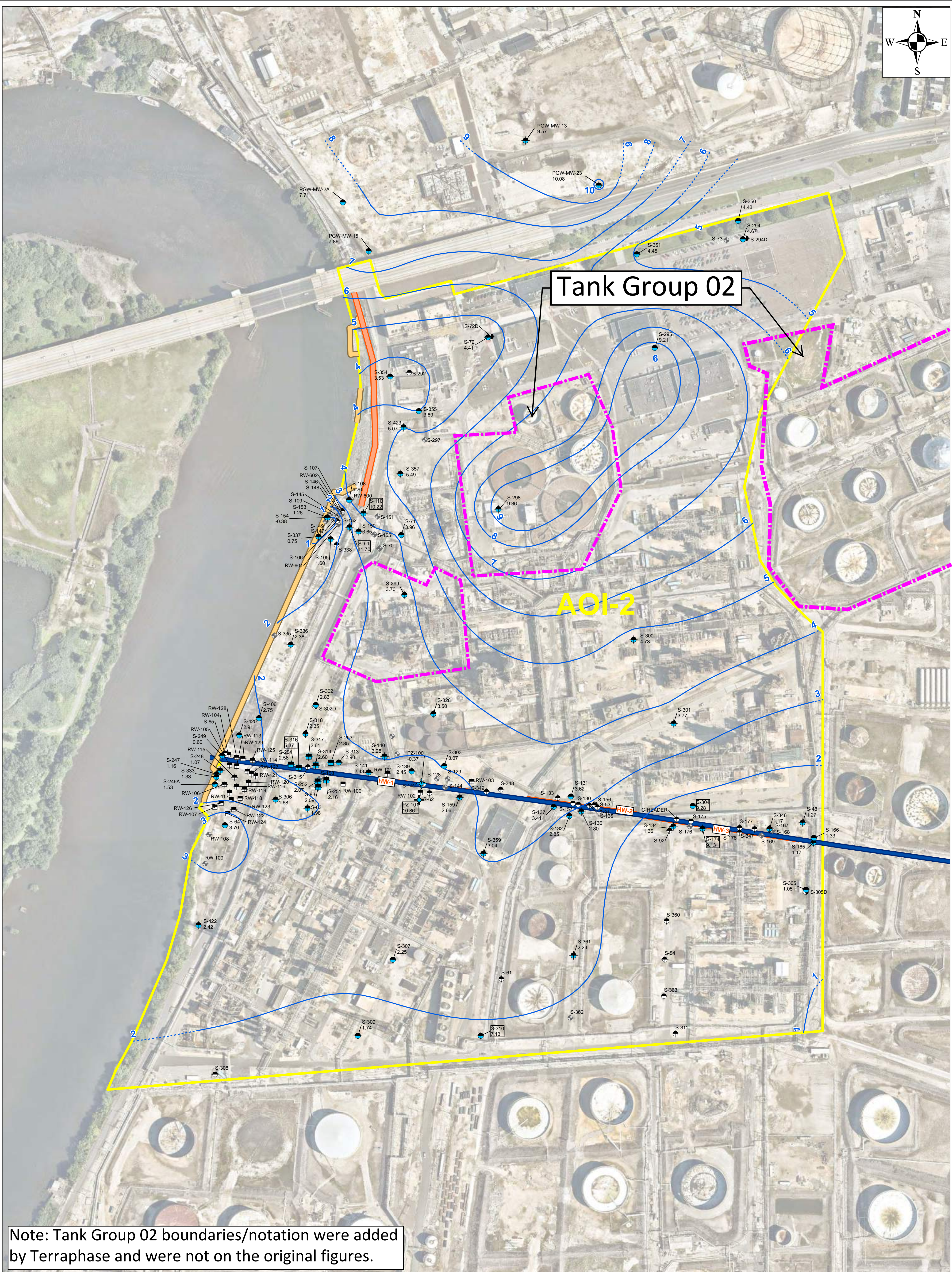
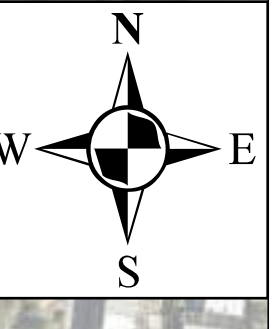
213402434
 Prepared by GWC on 2/9/2016
 Technical Review by ADK on 2/16/2016
 Independent Review by MN on 2/16/2016

Client/Project
 EVERGREEN RESOURCES MANAGEMENT OPERATIONS
 PHILADELPHIA REFINERY COMPLEX
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Figure No.
 5-5

Title
 MAY 2015 WATER-TABLE ELEVATION -
 INCLUDING SYNOPTIC DSCP GAUGING DATA

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Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

Legend

- S-131 3.33 Unconfined Aquifer Monitoring Well and Groundwater Elevation (ft. amsl)
- S-93 1.14 Unconfined Aquifer Recovery Well and Groundwater Elevation (ft. amsl)
- PZ-101 9.63 Unconfined Aquifer Piezometer and Groundwater Elevation (ft. amsl)
- Well Abandoned/Destroyed/Unable to Locate
- Lower Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well
- Unconfined Aquifer Recovery Well
- Unconfined Aquifer Piezometer
- Horizontal Well
- Unconfined Aquifer Groundwater Contours (ft. amsl)
- Inferred Unconfined Aquifer Groundwater Contours (ft. amsl)
- Vertical Wall
- Bulkhead
- Pollock Street Sewer
- AOI Boundary
- Well Not Used in Contouring

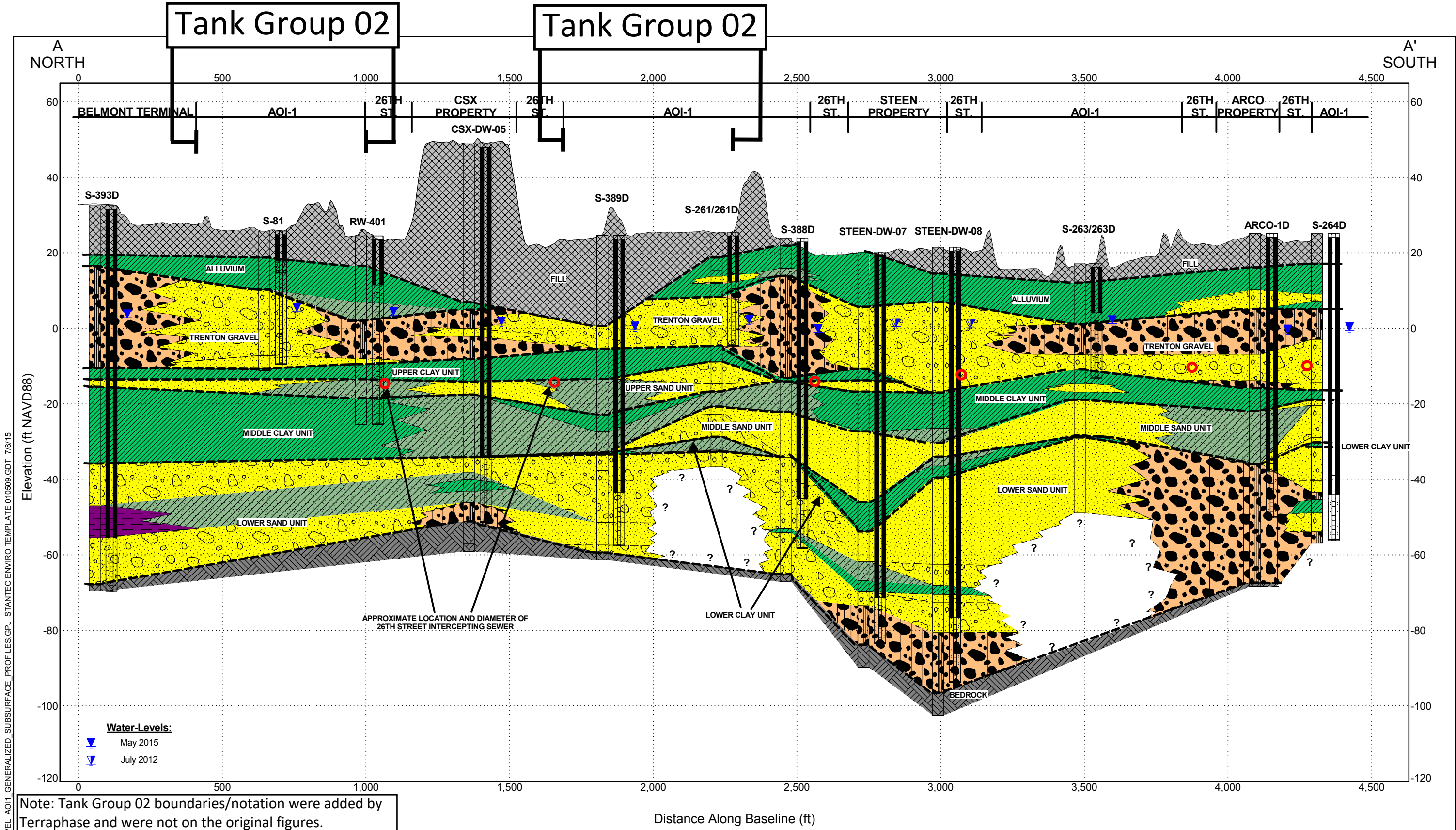
Notes:
 1. Aerial imagery provided by Nearmap.com, dated 7/29/2015.
 2. Area of Interest boundaries referenced from 2011 ALTA/ACSM Land Title Survey, prepared for Sunoco Inc. (R&S).
 3. Groundwater elevations were obtained from the October 2016 gauging event performed by Aquaterra Technologies, Incorporated.
 4. ft. amsl = feet above mean sea level
 5. Philadelphia Gas Works (PGW) wells were gauged by Environmental Alliance, Inc. on October 26, 2016.

Figure 8: Groundwater Elevations (October 2016) Unconfined Aquifer Wells AOI-2 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

SCALE: 1" = 150'
 DATE: March 3, 2017
 DRN: BY: HD
 CDD: BY: ED
 JOB#: 2574602

0 75 150 300 Feet



STRAT COLUMN WELL AND WAT LEVEL_A011_GENERALIZED_SUBSURFACE_PROFILES.GPJ_STANTEC_ENVIRO TEMPLATE 01:0509.GDT 7/8/15

Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



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

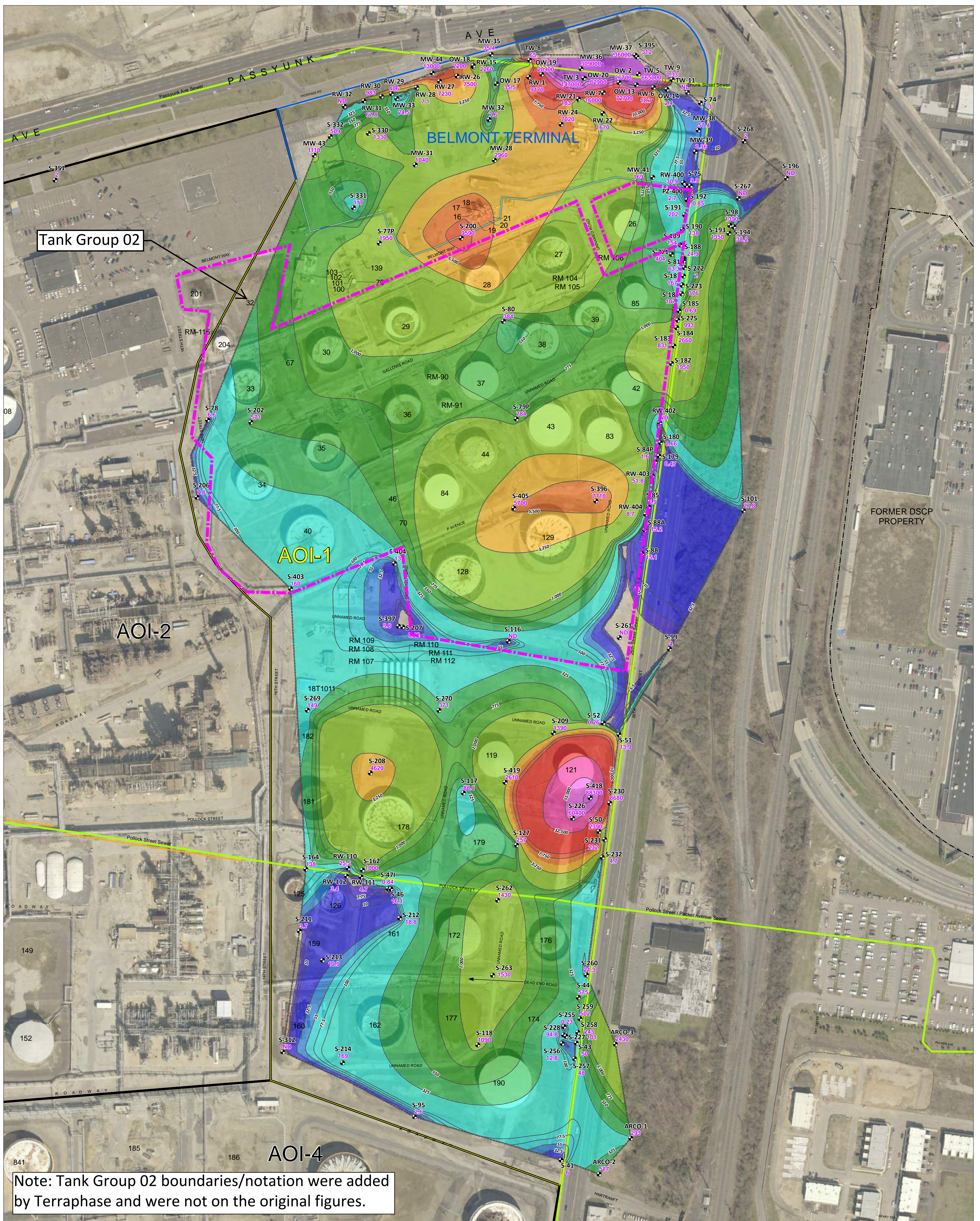
Notes:

1. Land surface profile obtained from a 2010 light detection and ranging (LIDAR) elevation model available from the United States Geological Survey (USGS).
2. Water levels shown represent measurements performed by Stantec in May 2015 for wells S-393D, S-81, RW-401, S-389D, S-261D, S-388D, S-263D, and S-264D. Water levels for offsite wells CSX-DW-5, STEEN-DW-07, and STEEN-DW-08 obtained from Defense Logistics Agency (DLA) for May 2015 and July 2012, respectively. Steen property wells were not accessible in 2015.
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 dashed where inferred.
5. NAVD 88 = North American Vertical Datum of 1988
6. Vertical Exaggeration = 14 X

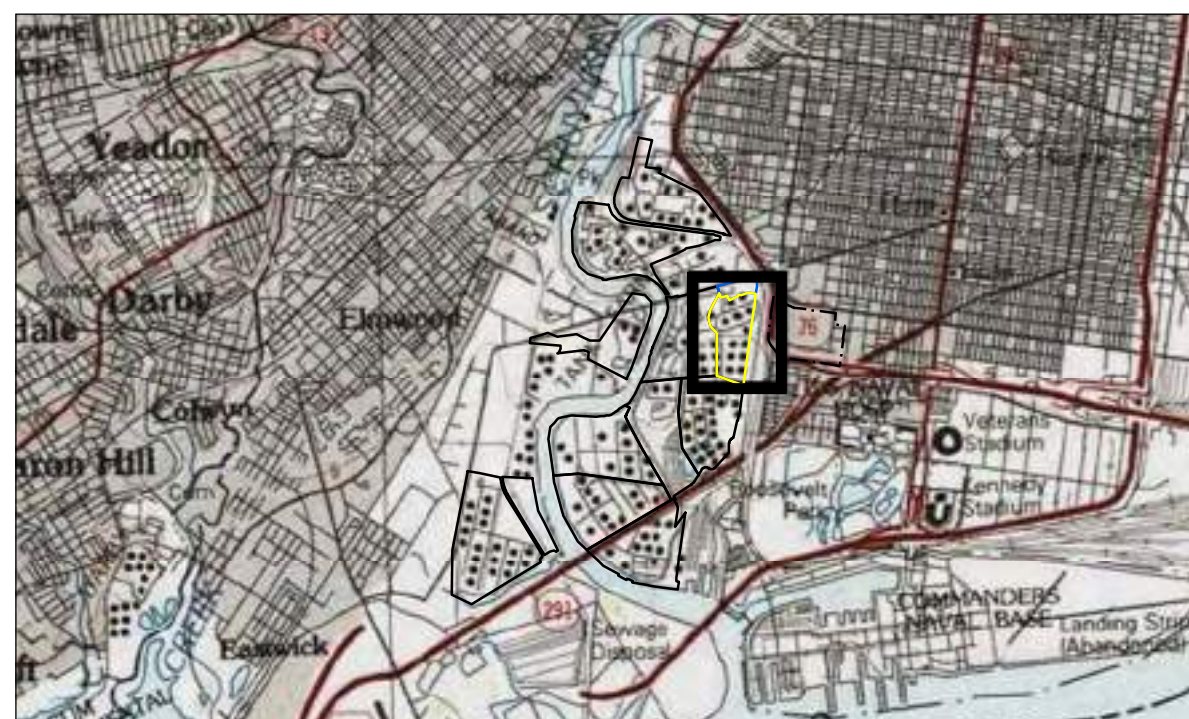
Figure 5-1. Stratigraphic Profile A - A'

Evergreen Resources Management Operations
 Philadelphia Refinery Complex
 3144 Passyunk Avenue
 Philadelphia, PA 19145

Project Number: 213402434

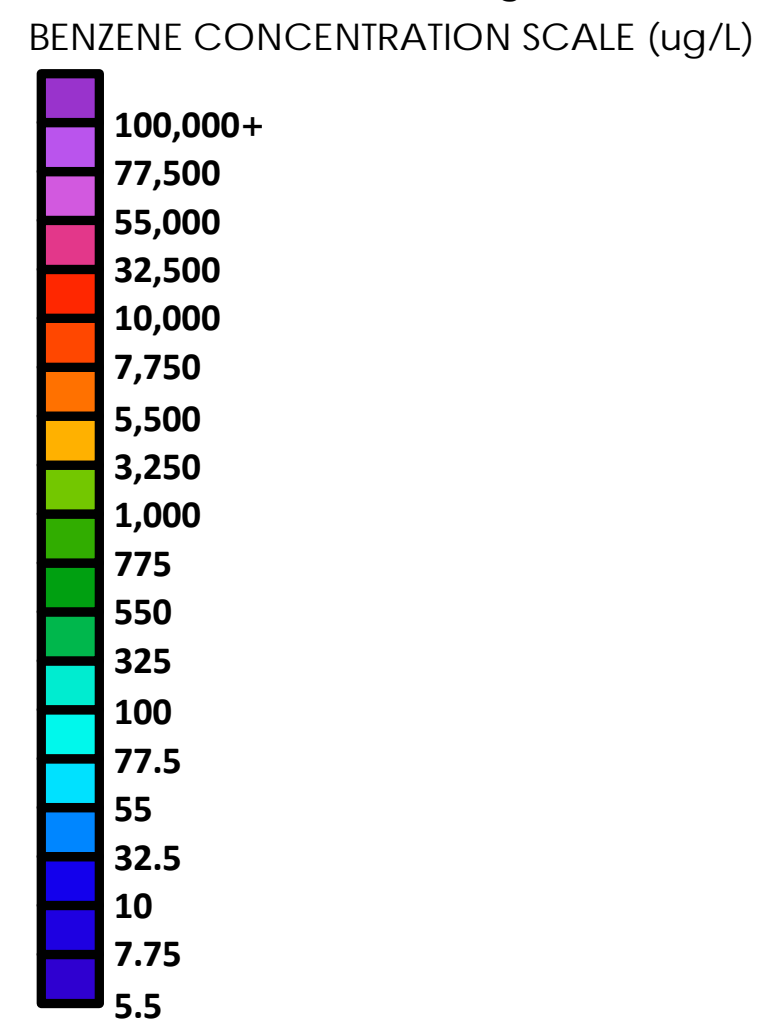


Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



- Legend**
- MONITORING/RECOVERY WELL
 - POLLOCK STREET HORIZONTAL WELL
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - AREA OF INTEREST (AOI) 1
 - BELMONT TERMINAL
 - AREA OF INTEREST (AOI)
 - FORMER DSCP PROPERTY
 - CROPPED GRID EXTENT

2014/2015 BENZENE MAXIMUM CONCENTRATION (ug/L)



0 125 250 Feet
1:1,500 (At original document size of 24x36)

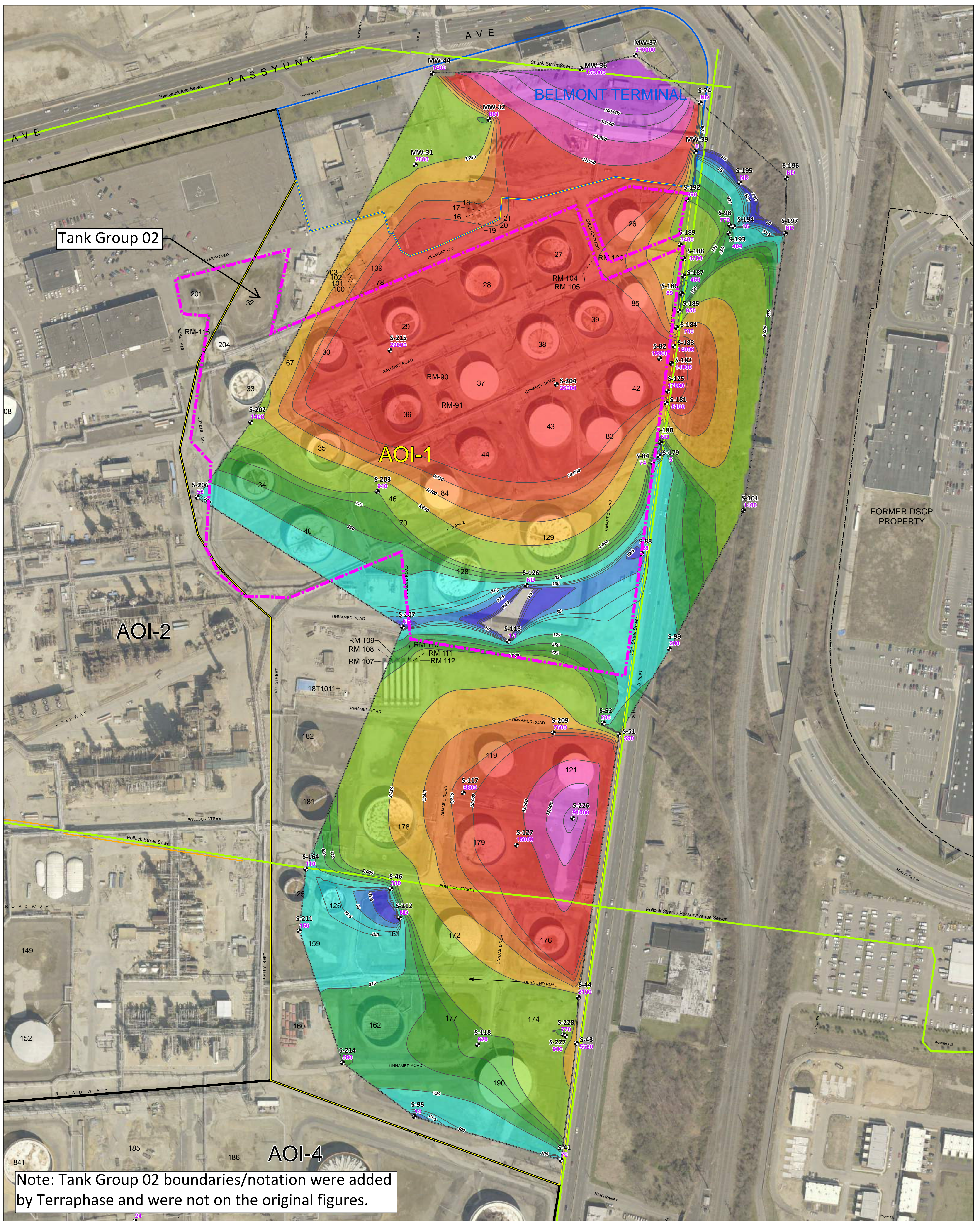


Figure No. 10-2
Title UNCONFINED AQUIFER BENZENE MAXIMUM CONCENTRATION - 2014 AND 2015 DATA

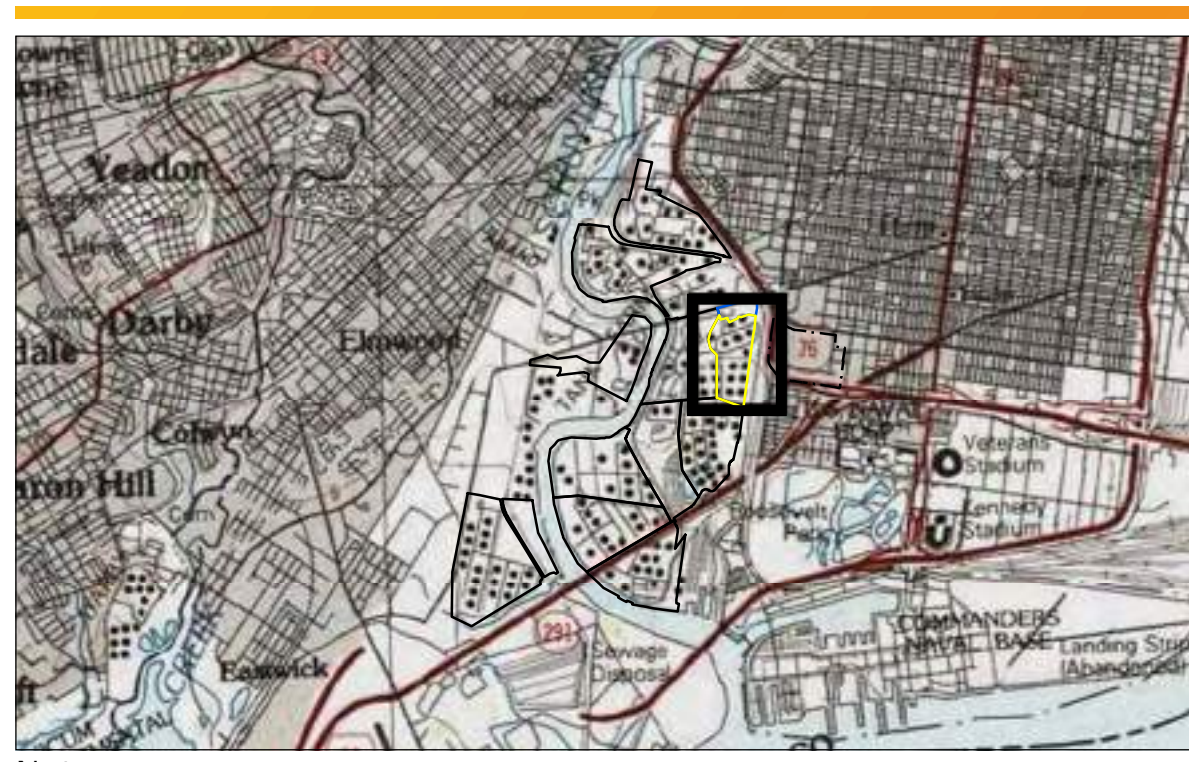
Client/Project EVERGREEN RESOURCES MANAGEMENT OPERATIONS
PHILADELPHIA REFINERY COMPLEX
3144 PASSYUNK AVENUE
PHILADELPHIA, PA 19145

Project Location City of Philadelphia, Pennsylvania
Prepared by GWC on 2/26/2016
Technical Review by ADK on 2/29/2016
Independent Review by JKD on 2/29/2016





Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



- Legend**
- MONITORING/RECOVERY WELL
 - POLLOCK STREET HORIZONTAL WELL
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - AREA OF INTEREST (AOI) 1
 - BELMONT TERMINAL
 - AREA OF INTEREST (AOI)
 - FORMER DSCP PROPERTY
 - CROPPED GRID EXTENT

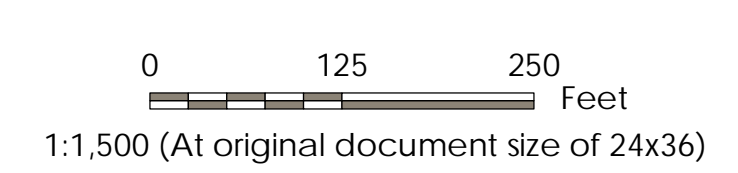
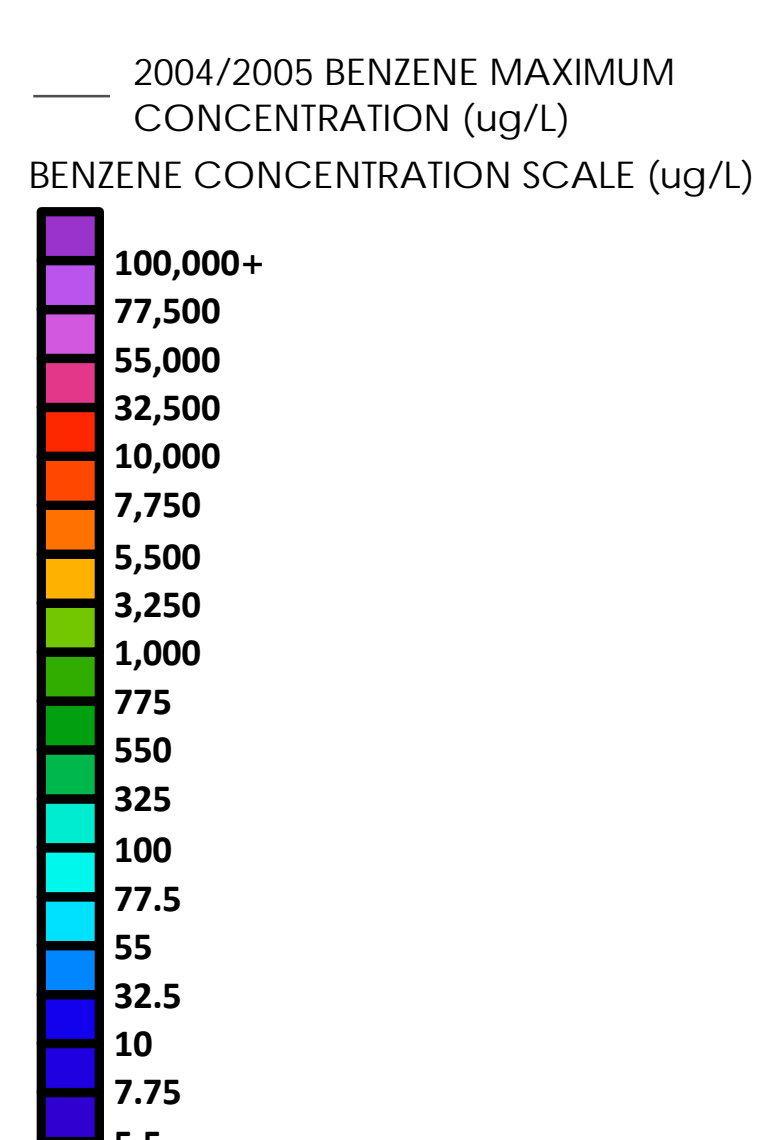
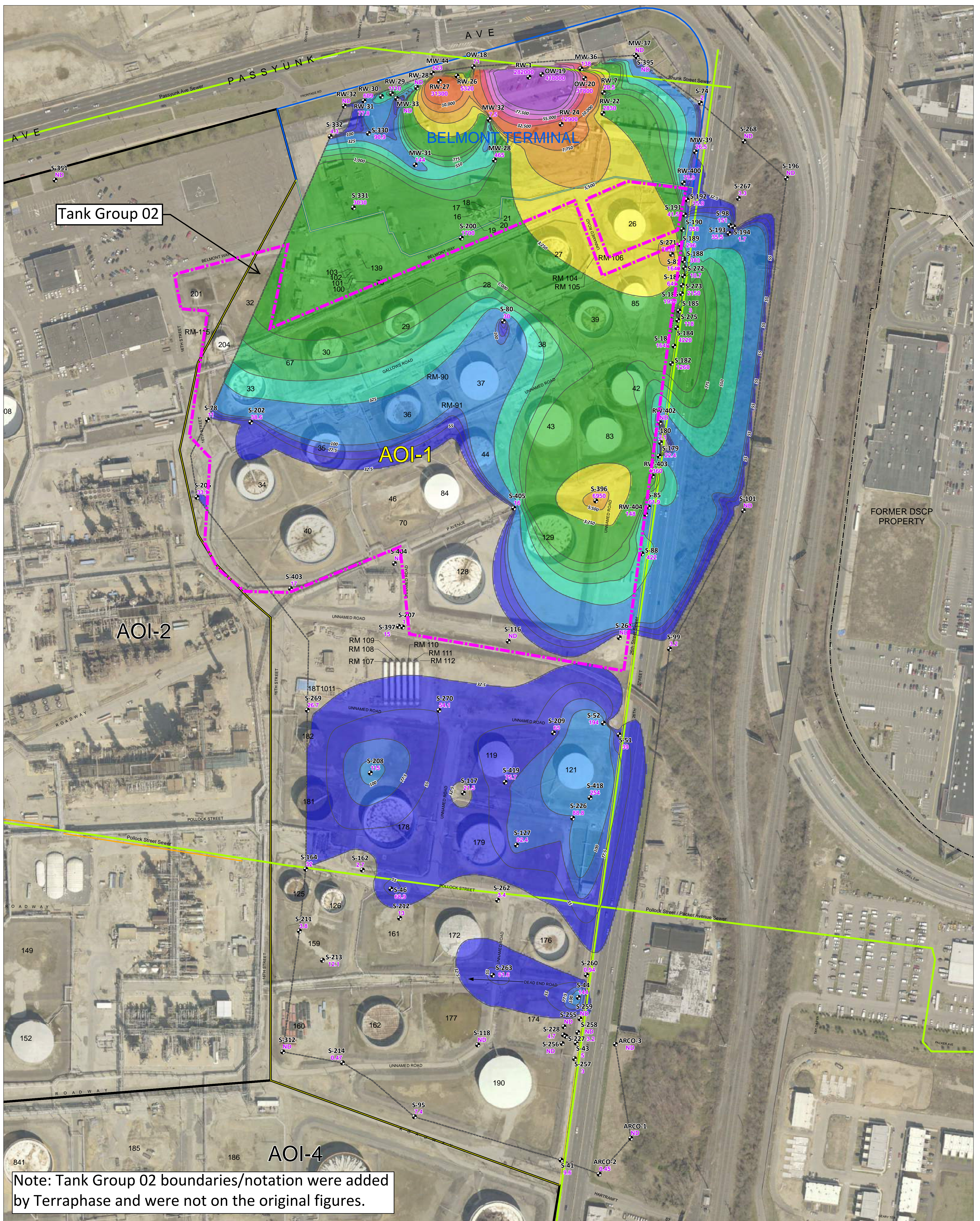


Figure No. 10-3
 Title UNCONFINED AQUIFER BENZENE MAXIMUM CONCENTRATION - 2004 AND 2005 DATA

Client/Project EVERGREEN RESOURCES MANAGEMENT OPERATIONS
 PHILADELPHIA REFINERY COMPLEX
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Project Location City of Philadelphia, Pennsylvania
 Prepared by GWC on 2/26/2016
 Technical Review by ADK on 2/29/2016
 Independent Review by JKD on 2/29/2016





Tank Group 02

AOI-1

AOI-2

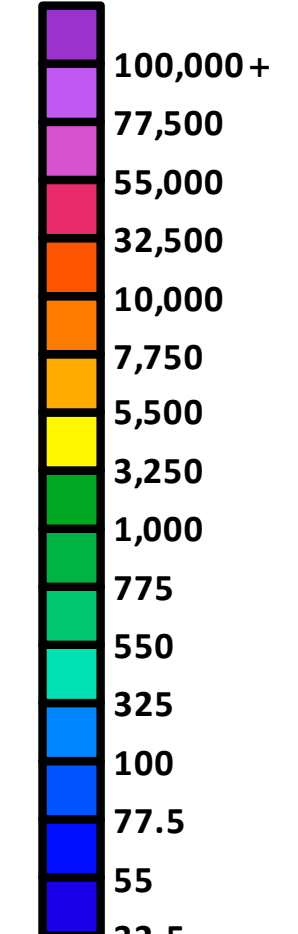
AOI-4

Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



- Legend**
- MONITORING/RECOVERY WELL
 - POLLOCK STREET HORIZONTAL WELL
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - AREA OF INTEREST (AOI) 1
 - BELMONT TERMINAL
 - AREA OF INTEREST (AOI)
 - FORMER DSCP PROPERTY
 - CROPPED GRID EXTENT

2014/2015 MTBE MAXIMUM CONCENTRATION (ug/L)
 MTBE CONCENTRATION SCALE (ug/L)



0 125 250 Feet
 1:1,500 (At original document size of 24x36)

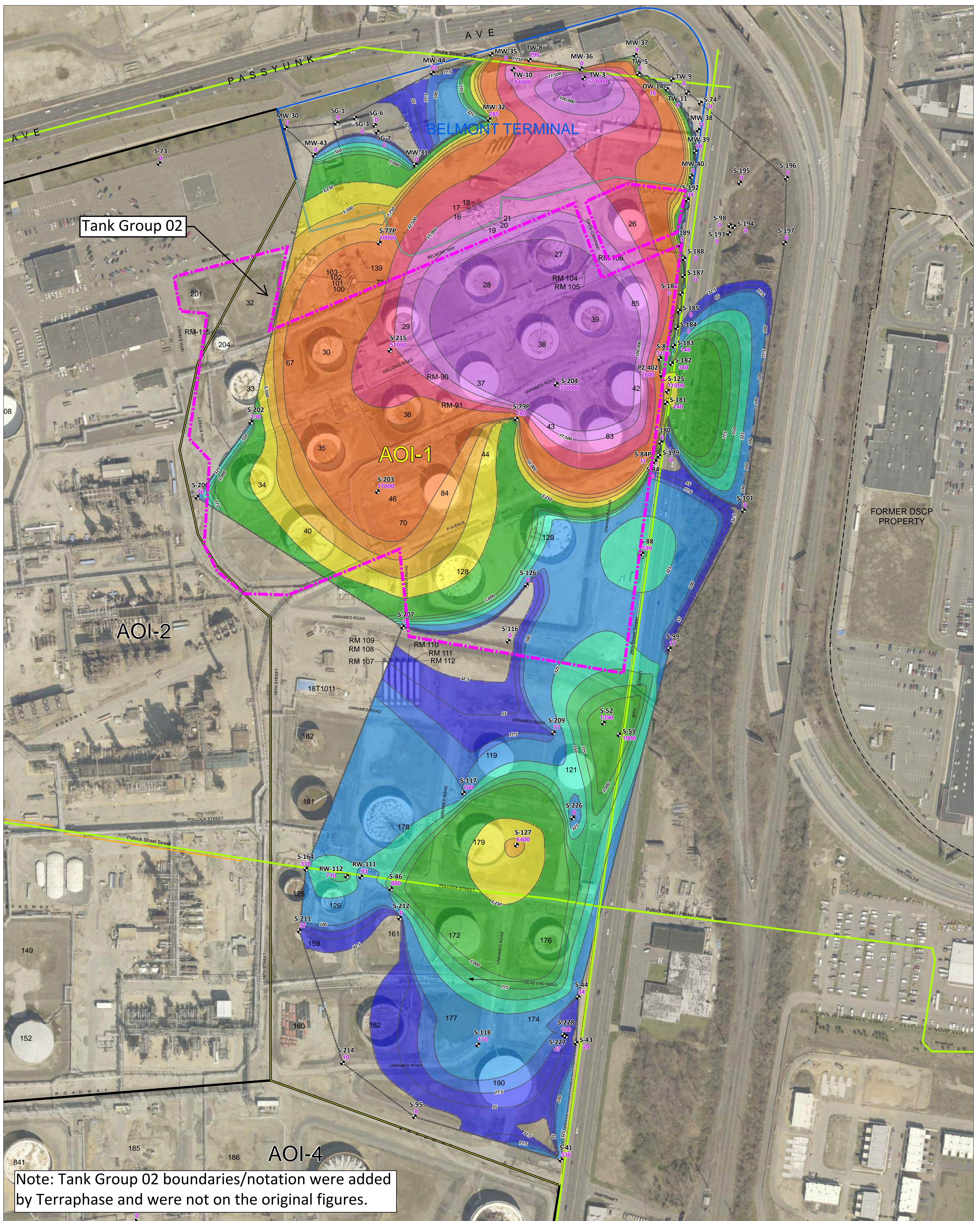


Figure No. 10-4
 Title UNCONFINED AQUIFER MTBE MAXIMUM CONCENTRATION - 2014 AND 2015 DATA

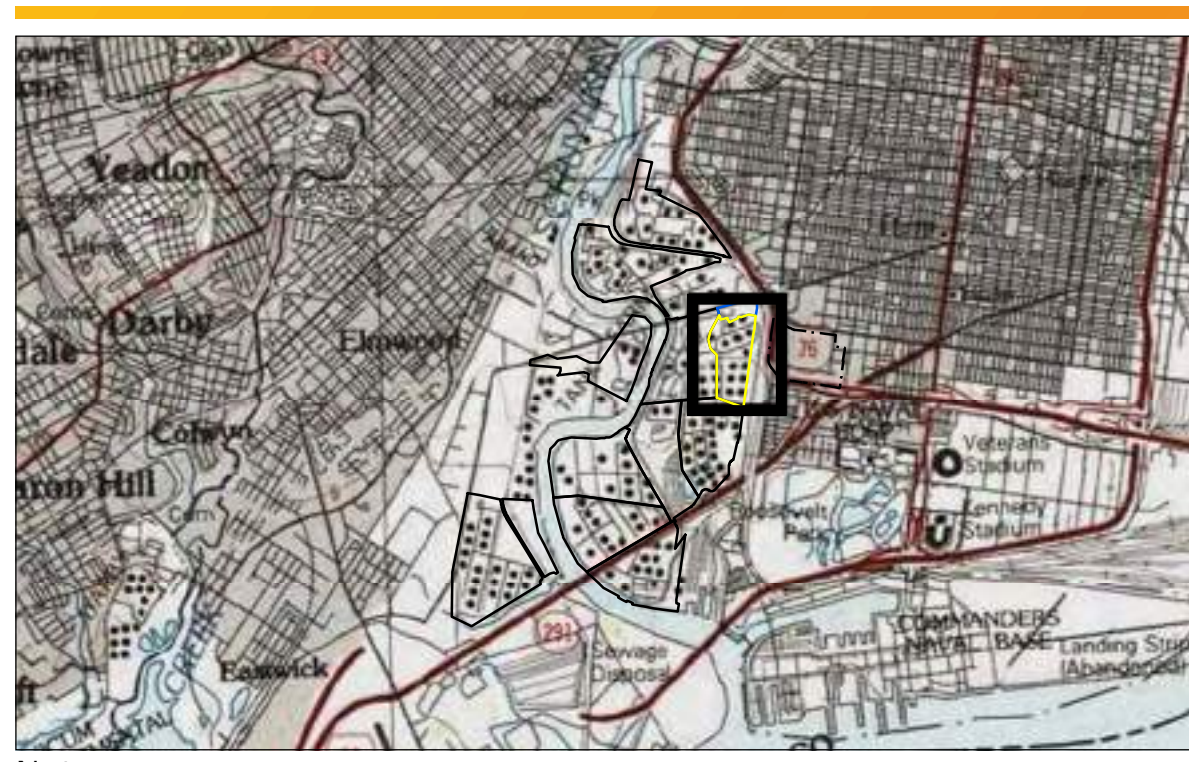
Client/Project EVERGREEN RESOURCES MANAGEMENT OPERATIONS
 PHILADELPHIA REFINERY COMPLEX
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Project Location City of Philadelphia, Pennsylvania
 Prepared by GWC on 2/26/2016
 Technical Review by ADK on 2/29/2016
 Independent Review by JKD on 2/29/2016





Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.



- Legend**
- MONITORING/RECOVERY WELL
 - POLLOCK STREET HORIZONTAL WELL
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - AREA OF INTEREST (AOI) 1
 - BELMONT TERMINAL
 - AREA OF INTEREST (AOI)
 - FORMER DSCP PROPERTY
 - CROPPED GRID EXTENT

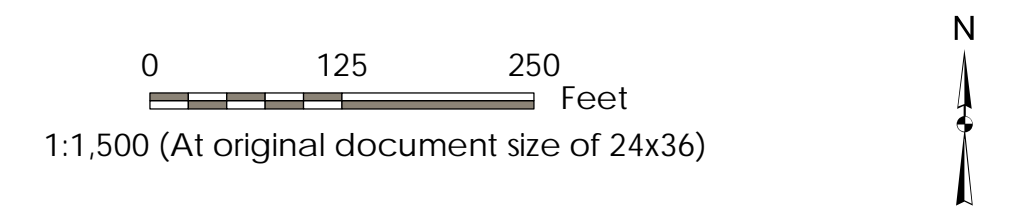
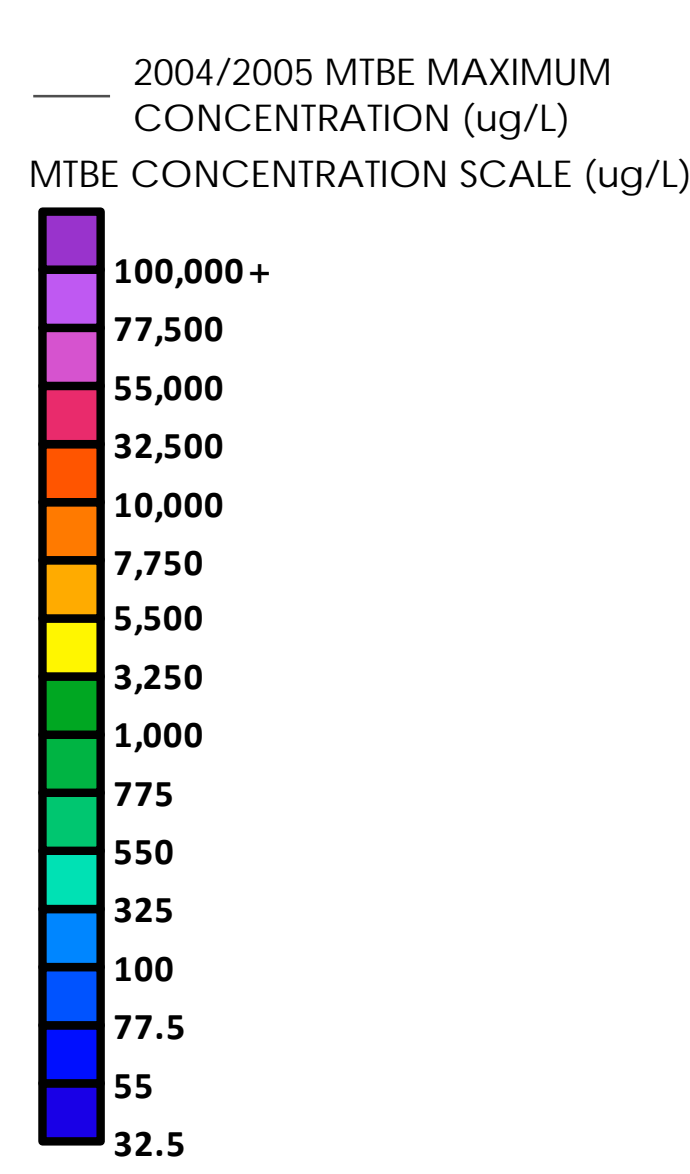
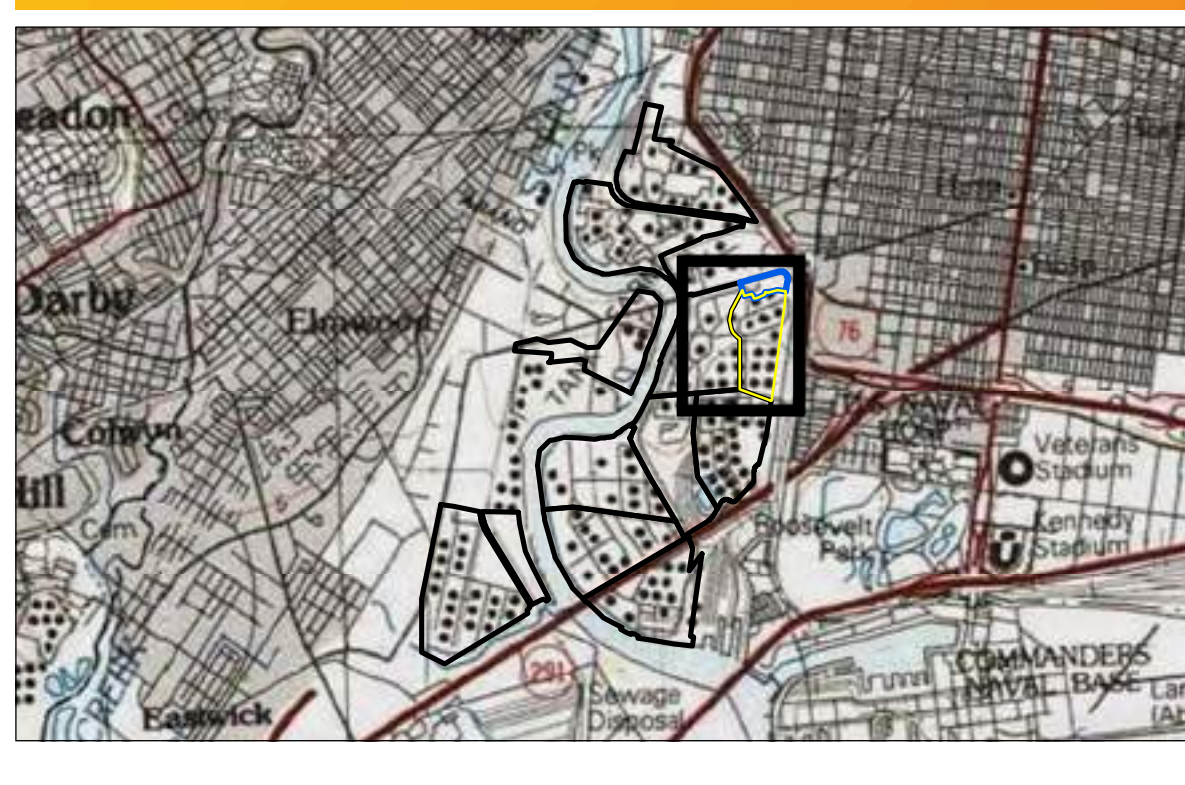
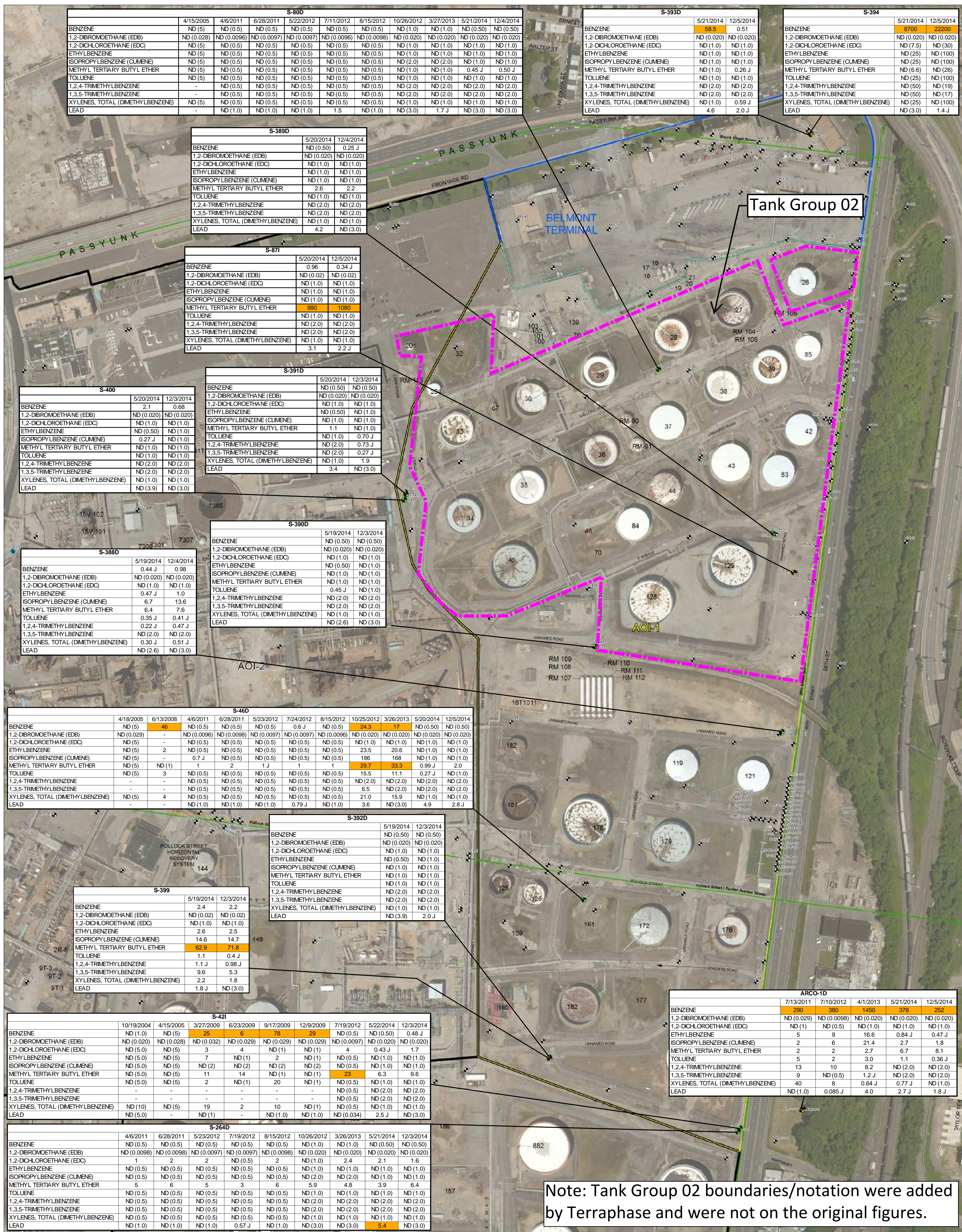


Figure No. 10-5
 Title UNCONFINED AQUIFER MTBE MAXIMUM CONCENTRATION - 2004 AND 2005 DATA

Client/Project EVERGREEN RESOURCES MANAGEMENT OPERATIONS
 PHILADELPHIA REFINERY COMPLEX
 3144 PASSYUNK AVENUE
 PHILADELPHIA, PA 19145

Project Location City of Philadelphia, Pennsylvania
 Prepared by GWC on 2/26/2016
 Technical Review by ADK on 2/29/2016
 Independent Review by JKD on 2/29/2016





- Legend**
- GROUNDWATER EXCEEDANCE OF THE PADEP NON-RESIDENTIAL, USED AQUIFER STATEWIDE HEALTH STANDARD (SHS) DURING MOST RECENT SAMPLING EVENT
 - NO GROUNDWATER EXCEEDANCE OF THE PADEP NON-RESIDENTIAL, USED AQUIFER SHS DURING MOST RECENT SAMPLING EVENT
 - MONITORING/RECOVERY WELL
 - DAMAGED MONITORING WELL
 - DESTROYED MONITORING WELL
 - POLLOCK STREET HORIZONTAL WELL
 - SEWER LINE
 - AREA OF INTEREST (AOI) 1
 - BELMONT TERMINAL
 - AREA OF INTEREST (AOI)
 - 58.5 CONCENTRATION DETECTED IN GROUNDWATER SAMPLE EXCEEDS THE SHS
 - ND (0.020) COMPOUND NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT (IN PARENTHESES)

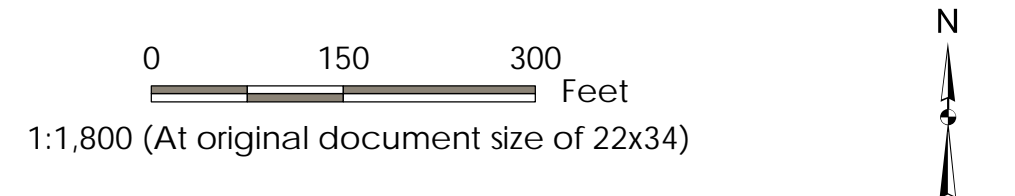
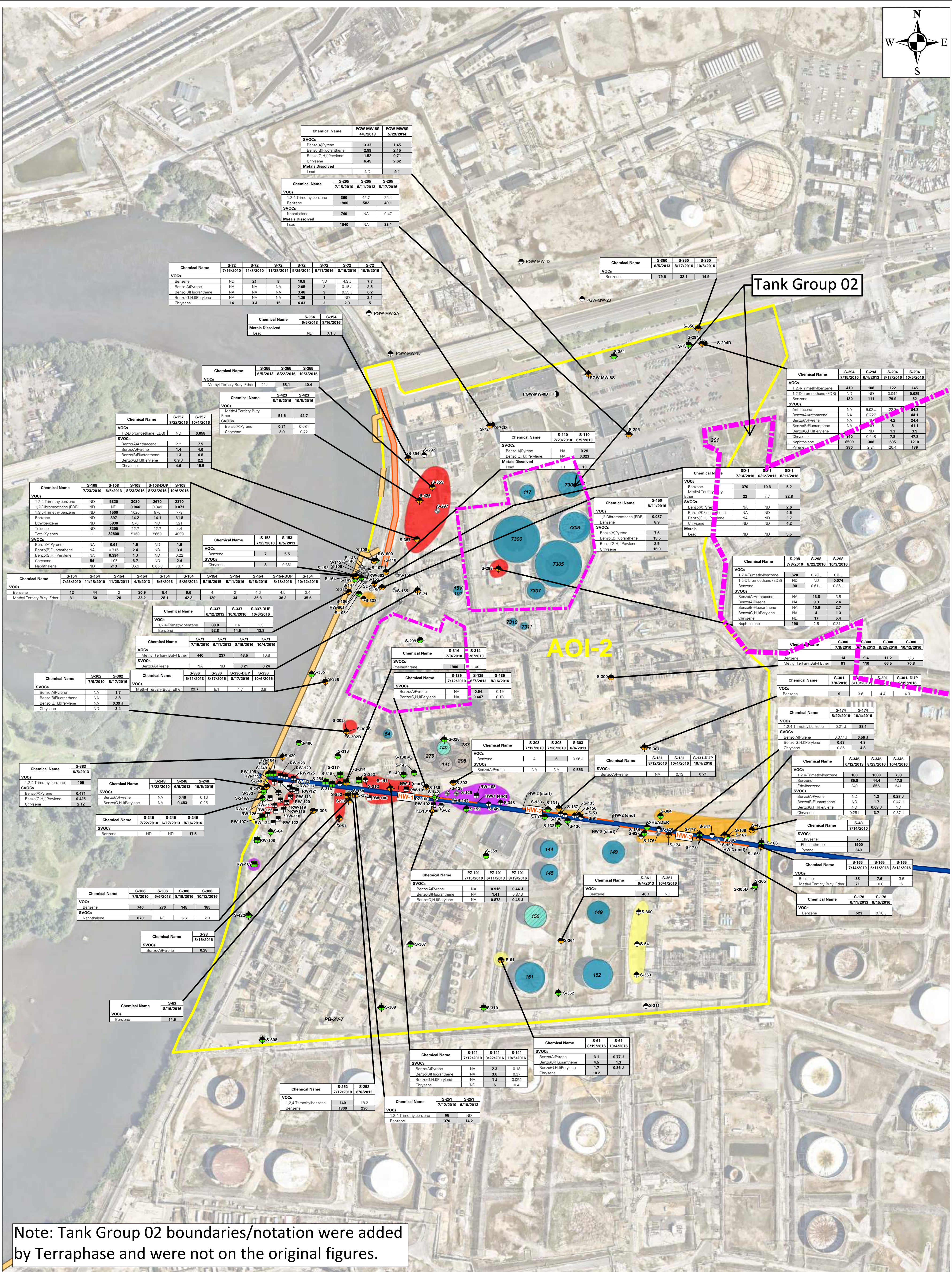
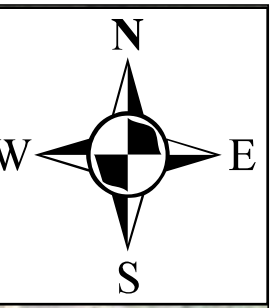


Figure No. 10-6
 Title HISTORIC GROUNDWATER ANALYTICAL RESULTS - LOWER AQUIFER
 Client/Project EVERGREEN RESOURCES MANAGEMENT OPERATIONS PHILADELPHIA REFINERY COMPLEX 3144 PASSYUNK AVENUE PHILADELPHIA, PA 19145
 Project Location City of Philadelphia, Pennsylvania 213402434
 Prepared by GWC on 3/1/2016
 Technical Review by JKD on 3/1/2016
 Independent Review by ADK on 3/1/2016

Notes

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
2. Sources: Stantec
3. All concentrations shown in ug/L
4. Concentrations of semi-volatile organic compounds (SVOCs) not shown as none of these compounds have been detected at concentrations above the statewide health standards in the lower aquifer in AOI 1
5. Dissolved concentrations of metals shown
6. J - indicates an estimated value
7. Belmont Terminal data shown for informational purposes only.
8. Aerial & Topo © 2016 Microsoft Corporation
- Copyright © 2013 National Geographic Society, i-cubed
- Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

Legend

- Unconfined Aquifer Piezometer Groundwater Sample with Exceedance between 2015 - 2016
- Unconfined Aquifer Recovery Well Groundwater Sample with Exceedance between 2015 - 2016
- Unconfined Aquifer Monitoring Well Groundwater Sample with Exceedance between 2015 - 2016
- Unconfined Aquifer Piezometer Groundwater Sample with No Exceedance between 2015 - 2016
- Unconfined Aquifer Recovery Well Groundwater Sample with No Exceedance between 2015 - 2016
- Unconfined Aquifer Monitoring Well Groundwater Sample with No Exceedance between 2015 - 2016
- Well Abandoned/Destroyed/Unable to
- Lower Aquifer Monitoring
- Unconfined Aquifer Monitoring
- Unconfined Aquifer Recovery
- Unconfined Aquifer Piezometer
- Horizontal Well
- Vertical Wall
- Bulkhead
- Pollock Street Sewer
- AOI Boundary
- Tank Closed in Place
- Tank in Service
- Closed in Place Following Release

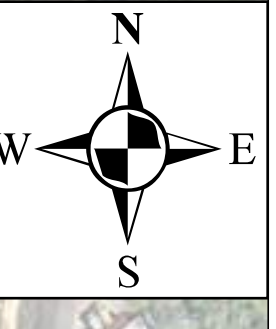
Figure 12A: Summary of Unconfined Aquifer Groundwater Sample Exceedances AOI-2 Remedial Investigation Report PES Philadelphia Refinery Philadelphia, Pennsylvania

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

Notes:
1. Aerial imagery provided by Nearmap.com as is dated 07/29/15.
2. Area of Interest boundaries referenced from 2011 ALTA/ACSM Land Title Survey, prepared for Sunoco Inc. (R&S).
3. LNAPL presence based on November 2016 groundwater gauging.
4. All groundwater results are displayed in micrograms per liter (µg/L).
5. S-363 was renamed to S-420.
6. S-246 was renamed to S-246A.

SCALE: 1" = 180'
DATE: March 1, 2017
DWN BY: MMK
CKD BY: ED
JOB#: 2574602

0 90 180 360 Feet



Chemical Name	S-72D 7/23/2010	S-72D 4/7/2011	S-72D 8/28/2011	S-72D 5/29/2012	S-72D 8/17/2012	S-72D 10/26/2012	S-72D 3/27/2013	S-72D 8/23/2016	S-72D 10/8/2016
Metals Dissolved								8.4	
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND

Chemical Name	S-294D 7/23/2010	S-294D 4/6/2011	S-294D 8/28/2011	S-294D 8/17/2012	S-294D 5/30/2012	S-294D 10/26/2012	S-294D 4/1/2013	S-294D 8/23/2016
VOCs								
1,2,4-Trimethylbenzene	15	ND	ND	ND	3	ND	96	ND
Benzene	ND	ND	ND	ND	ND	ND	88.6	ND
SVOCs								
Benzo(a)Pyrene	NA	NA	NA	0.1 J	NA	ND	0.282	ND
Naphthalene	140	ND	ND	0.4 J	48	20.8	921	ND

Tank Group 02

AOI-2

Chemical Name	S-302D 7/26/2010	S-302D 4/7/2011	S-302D 8/28/2011	S-302D 5/29/2012	S-302D 8/17/2012	S-302D 10/26/2012	S-302D 3/28/2013	S-302D 8/23/2016	S-302D 10/12/2016
Metals Dissolved								8.6	
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND

Chemical Name	S-305D 7/26/2010	S-305D 4/6/2011	S-305D 8/29/2011	S-305D 5/25/2012	S-305D 8/17/2012	S-305D 10/25/2012	S-305D 3/27/2013	S-305D 8/23/2016	S-305D 10/7/2016
Metals Dissolved								7.4	
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

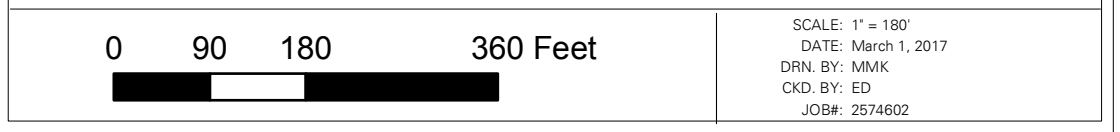
Legend

- Lower Aquifer Monitoring Well Groundwater Sample with Exceedance between 2015 - 2016
- Lower Aquifer Monitoring Well Groundwater Sample with No Exceedance between 2015 - 2016
- Well Abandoned/Destroyed/Unable to
- Lower Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well
- Unconfined Aquifer Recovery Well
- Unconfined Aquifer Piezometer
- Horizontal Well
- Vertical Wall
- Bulkhead
- Pollock Street Sewer
- Tank Closed in Place
- Tank in Service
- Closed in Place Following Release

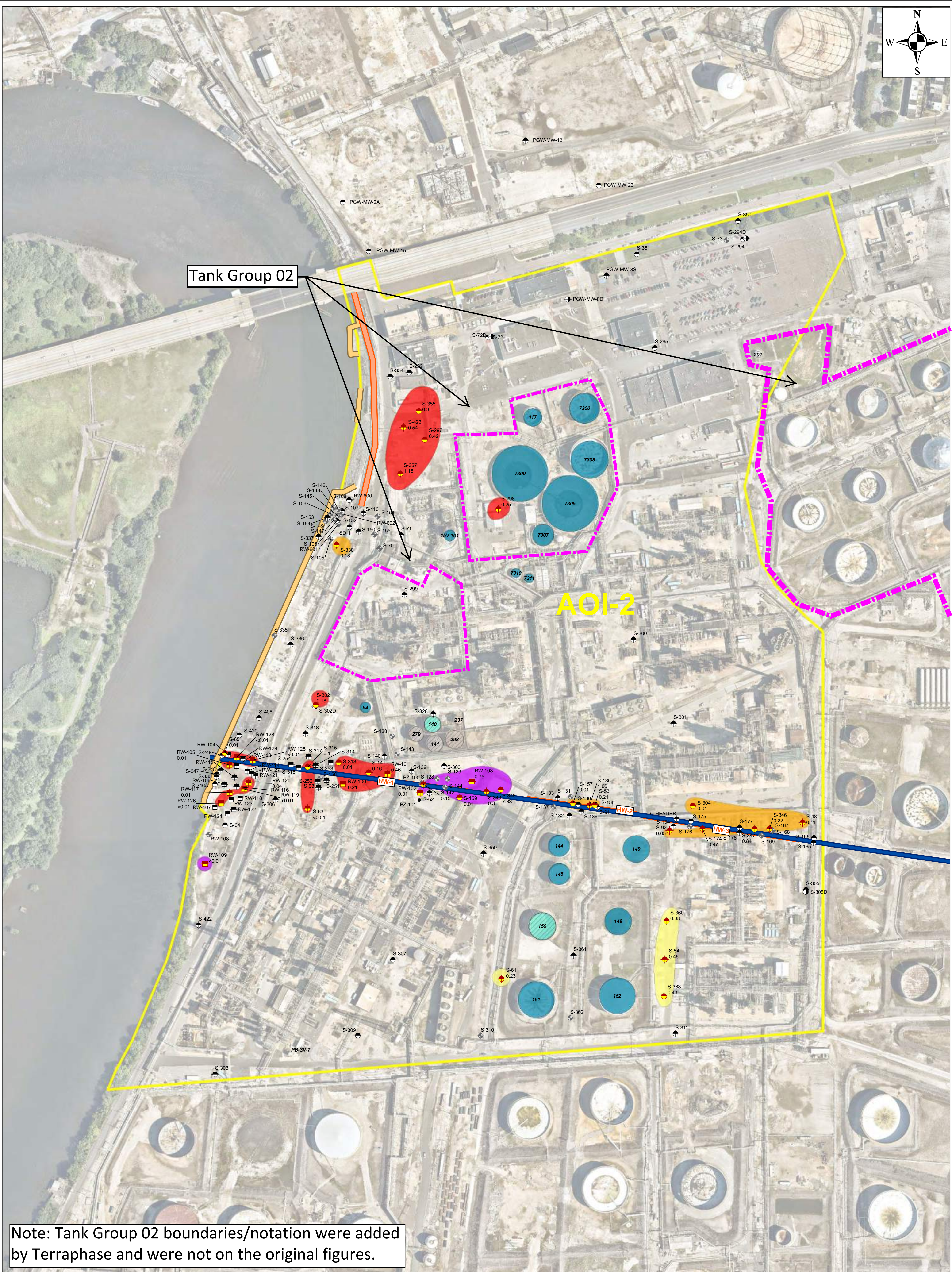
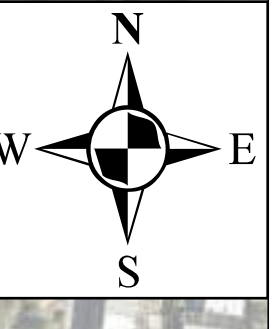
- LNAPL Types**
- Light Distillate
 - Mixes of Light/Middle Distillate
 - Middle Distillate
 - Heavy Distillate
 - AOI Boundary

Figure 12B: Summary of Lower Aquifer Groundwater Sample Exceedances AOI-2 Remedial Investigation Report PES Philadelphia Refinery Philadelphia, Pennsylvania

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



Notes:
1. Aerial imagery provided by Nearmap.com as is dated 07/29/15.
2. Area of Interest boundaries referenced from 2011 ALTA/ACSM Land Title Survey, prepared for Sunoco Inc. (R&S).
3. LNAPL presence based on November 2016 groundwater gauging.
4. All groundwater results are displayed in micrograms per liter (µg/L).
Path: \\langan.com\data\DY\1\data\2574601\ArcGIS\MapDocuments\AOI 2 RIR 2016\Figure 12B - Summary of Lower Aquifer Groundwater Sample Exceedances.mxd Date: 7/13/2017 User: hmnun Time: 10:31:27 AM



Tank Group 02

AOI-2

Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

Legend

- S-141 0.16 Unconfined Aquifer Monitoring Well with Apparent LNAPL Thickness (feet)
- Unconfined Aquifer Recovery Well with Apparent LNAPL Thickness (feet)
- Well Abandoned/Destroyed/Unable to Locate
- Lower Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well
- Unconfined Aquifer Recovery Well
- Unconfined Aquifer Piezometer
- Vertical Wall
- Bulkhead
- Pollock Street Sewer
- Horizontal Well
- Tank Closed in Place
- Tank in Service
- Closed in Place Following Release

LNAPL Types

- Light Distillate
- Mixes of Light/Middle Distillate
- Middle Distillate
- Heavy Distillate
- AOI Boundary

Notes:
 1. Aerial photography 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. LNAPL presence based on November 2016 groundwater gauging.
 4. LNAPL = Light Non-Aqueous Phase Liquid.

Figure 14: Apparent LNAPL Thickness and Type
 AOI-2 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

SCALE: 1" = 150'

DATE: March 1, 2017

DRN: BY: MMK

QDD: BY: ED

JOB#: 2574602

0 75 150 300 Feet

Appendix B

Historical Soil Sampling Results



Table B
Historical Soil Sampling Results

Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-001 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-002 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-003 Soil - Surface 0 - 2 5/22/2015	AOI1_BH-14-003 Soil - Subsurface 8 - 10 5/26/2015	AOI1_BH-14-004 Soil - Surface 0 - 2 5/27/2015	AOI1_BH-14-004 Soil - Subsurface 8 - 10 5/29/2015	AOI1_BH-14-005 Soil - Surface 0 - 2 5/27/2015
Matrix	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-001 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-002 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-003 Soil - Surface 0 - 2 5/22/2015	AOI1_BH-14-003 Soil - Subsurface 8 - 10 5/26/2015	AOI1_BH-14-004 Soil - Surface 0 - 2 5/27/2015	AOI1_BH-14-004 Soil - Subsurface 8 - 10 5/29/2015	AOI1_BH-14-005 Soil - Surface 0 - 2 5/27/2015
Collection Depth (ft bgs)	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-001 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-002 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-003 Soil - Surface 0 - 2 5/22/2015	AOI1_BH-14-003 Soil - Subsurface 8 - 10 5/26/2015	AOI1_BH-14-004 Soil - Surface 0 - 2 5/27/2015	AOI1_BH-14-004 Soil - Subsurface 8 - 10 5/29/2015	AOI1_BH-14-005 Soil - Surface 0 - 2 5/27/2015
Sample Date	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-001 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-002 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-003 Soil - Surface 0 - 2 5/22/2015	AOI1_BH-14-003 Soil - Subsurface 8 - 10 5/26/2015	AOI1_BH-14-004 Soil - Surface 0 - 2 5/27/2015	AOI1_BH-14-004 Soil - Subsurface 8 - 10 5/29/2015	AOI1_BH-14-005 Soil - Surface 0 - 2 5/27/2015
Comments	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-001 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-001 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-002 Soil - Surface 0 - 2 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 2 - 4 5/15/2015	AOI1_BH-14-002 Soil - Subsurface 4 - 6 5/15/2015	AOI1_BH-14-003 Soil - Surface 0 - 2 5/22/2015	AOI1_BH-14-003 Soil - Subsurface 8 - 10 5/26/2015	AOI1_BH-14-004 Soil - Surface 0 - 2 5/27/2015	AOI1_BH-14-004 Soil - Subsurface 8 - 10 5/29/2015	AOI1_BH-14-005 Soil - Surface 0 - 2 5/27/2015
Volatile Organic Compounds														
Benzene	280	330	0.5	NA	NA	NA	NA	0.055 (0.0052)	NA	0.11 (0.0055)	0.018 (0.0044)	0.18 (0.0058)	ND (0.24)	0.49 (0.24)
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	NA	ND (0.0055)	0.021 (0.0044)	0.02 (0.0058)	1.2 (0.24)	9.7 (2.4)
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	ND (0.0052)	NA	0.013 (0.0055)	0.057 (0.0044)	0.12 (0.0058)	0.24 J (0.24)	38 (2.4)
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	0.043 (0.0055)	0.0069 (0.0044)	0.0042 J (0.0058)	ND (0.24)	ND (0.24)
Toluene	10000	10000	100	NA	NA	NA	NA	0.024 (0.0052)	NA	0.11 (0.0055)	0.047 (0.0044)	0.23 (0.0058)	ND (0.24)	1.4 (0.24)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	0.062 (0.0055)	0.31 (0.24)	6.1 (0.37)	3.1 (0.24)	256 (23.6)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	0.067 (0.0055)	0.26 (0.0044)	1.8 (0.37)	2.3 (0.24)	<u>94.8 (2.4)</u>
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	0.0083 J (0.016)	NA	0.22 (0.017)	0.39 (0.013)	1.1 (0.017)	2.9 (0.71)	146 (7.1)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	0.015 (0.0081)	0.022 (0.0072)	0.024 (0.0076)	0.087 (0.0077)	0.41 (0.015)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	0.04 (0.0081)	0.0058 J (0.0072)	0.026 (0.0076)	0.0084 (0.0077)	0.37 (0.015)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	0.039 (0.0081)	0.0041 J (0.0072)	0.023 (0.0076)	0.0044 J (0.0077)	0.3 (0.015)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	0.13 (0.0081)	0.0086 (0.0072)	0.074 (0.0076)	0.0089 (0.0077)	0.78 (0.015)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	0.027 (0.0081)	0.0051 J (0.0072)	0.016 (0.0076)	0.0013 J (0.0077)	0.12 (0.015)
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	0.078 (0.0081)	0.0078 (0.0072)	0.049 (0.0076)	0.013 (0.0077)	0.42 (0.015)
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	0.01 (0.0081)	0.03 (0.0072)	0.015 (0.0076)	0.47 (0.0077)	0.66 (0.015)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	NA	NA	NA	NA	NA	0.52 (0.0081)	0.14 (0.0072)	1.3 (0.0076)	0.28 (0.0077)	<u>32.8 (0.38)</u>
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	0.12 (0.0081)	0.055 (0.0072)	0.15 (0.0076)	0.77 (0.0077)	1.7 (0.015)
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	0.091 (0.0081)	0.022 (0.0072)	0.099 (0.0076)	0.049 (0.0077)	1 (0.015)
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	13.4 (0.43)	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	95.3 (1.7)	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	0.28 (0.26)	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	29.8 (0.43)	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	48.2 (0.87)	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	130 J (0.41)	300 J (0.46)	8.1 J (0.42)	<u>497 J (0.48)</u>	<u>2110 J (0.43)</u>	11 J (0.4)	67.3 (0.47)	12 (0.37)	212 (0.42)	9.2 (0.48)	258 (0.33)
Mercury	510	190000	10	NA	NA	NA	NA	0.22 (0.13)	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	16.2 (1.7)	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	0.63 J (0.69)	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	136 (0.87)	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	Non-Res Direct	Non-Res Direct	Non-Residential	AOI1_BH-14-005	AOI1_BH-14-006	AOI1_BH-14-006	AOI1_BH-14-007	AOI1_BH-14-007	AOI1_BH-14-007	AOI1_BH-14-008	AOI1_BH-14-008	AOI1_BH-14-009	AOI1_BH-14-009	AOI1_BH-14-010	AOI1_BH-14-010
Matrix	Non-Res Direct	Non-Res Direct	Soil-to-GW MSCs	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface
Collection Depth (ft bgs)	Contact with	Contact with	Used Aquifer	10 - 12	0 - 2	15 - 17	0 - 2	14 - 16	0 - 2	10 - 12	0 - 2	14 - 16	0 - 2	14 - 16	14 - 16
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	TDS≤2500	6/4/2015	5/27/2015	5/28/2015	5/15/2015	5/19/2015	5/20/2015	5/22/2015	5/20/2015	5/22/2015	5/22/2015	5/19/2015	5/19/2015
Comments															
Volatile Organic Compounds															
Benzene	280	330	0.5	<u>2.5 (0.21)</u>	0.022 (0.0047)	0.33 (0.29)	ND (0.0052)	ND (0.25)	0.0045 J (0.0046)	ND (0.24)	ND (0.0048)	<u>0.98 (0.22)</u>	0.062 (0.0052)	<u>4.5 (0.24)</u>	
Cumene	10000	10000	2500	1.2 (0.21)	0.0031 J (0.0047)	0.31 (0.29)	ND (0.0052)	0.72 (0.25)	ND (0.0046)	0.17 J (0.24)	ND (0.0048)	0.67 (0.22)	0.016 (0.0052)	2.9 (0.24)	
Ethyl Benzene	880	1000	70	9.1 (0.21)	0.012 (0.0047)	0.59 (0.29)	ND (0.0052)	0.19 J (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	0.13 J (0.22)	0.14 (0.0052)	14.7 (0.24)	
Methyl tert-butyl ether	8500	9800	2	ND (0.21)	ND (0.0047)	ND (0.29)	ND (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	ND (0.22)	ND (0.0052)	0.22 J (0.24)	
Toluene	10000	10000	100	0.71 (0.21)	0.0069 (0.0047)	0.17 J (0.29)	0.0027 J (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	0.15 J (0.22)	0.027 (0.0052)	2 (0.24)	
1,2,4-Trimethylbenzene	4700	5400	300	50.6 (2.1)	0.016 (0.0047)	0.45 (0.29)	ND (0.0052)	0.26 (0.25)	ND (0.0046)	0.16 J (0.24)	0.0036 J (0.0048)	0.17 J (0.22)	0.19 (0.0052)	55 (2.4)	
1,3,5-Trimethylbenzene	4700	5400	93	16.2 (0.21)	0.0036 J (0.0047)	0.15 J (0.29)	ND (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	ND (0.22)	0.064 (0.0052)	17.9 (0.24)	
Xylenes (total)	7900	9100	1000	80.2 (6.3)	0.035 (0.014)	1.6 (0.87)	ND (0.016)	0.29 J (0.74)	ND (0.014)	0.21 J (0.73)	0.0031 J (0.014)	0.23 J (0.65)	0.23 (0.016)	68.2 (7.1)	
Semi-Volatile Organic Compounds															
Anthracene	190000	190000	350	0.048 (0.015)	0.057 (0.0076)	ND (0.0081)	0.23 (0.038)	0.022 (0.016)	0.82 (0.015)	0.038 (0.0079)	0.032 (0.016)	0.01 J (0.015)	0.02 J (0.041)	0.034 (0.0072)	
Benzo(a)anthracene	130	190000	340	0.05 (0.015)	0.24 (0.0076)	ND (0.0081)	0.79 (0.038)	0.036 (0.016)	1.6 (0.015)	0.0033 J (0.0079)	0.12 (0.016)	ND (0.015)	0.1 (0.041)	0.026 (0.0072)	
Benzo(a)pyrene	91	190000	46	0.058 (0.015)	0.23 (0.0076)	ND (0.0081)	1 (0.038)	0.035 (0.016)	1.5 (0.015)	ND (0.0079)	0.11 (0.016)	ND (0.015)	0.17 (0.041)	0.009 (0.0072)	
Benzo(b)fluoranthene	76	190000	170	0.099 (0.015)	0.35 (0.0076)	ND (0.0081)	1.4 (0.038)	0.077 (0.016)	2.3 (0.015)	0.0025 J (0.0079)	0.24 (0.016)	0.0032 J (0.015)	0.39 (0.041)	0.018 (0.0072)	
Benzo(g,h,i)perylene	190000	190000	180	0.057 (0.015)	0.12 (0.0076)	ND (0.0081)	0.59 (0.038)	0.02 (0.016)	0.53 (0.015)	ND (0.0079)	0.052 (0.016)	ND (0.015)	0.13 (0.041)	0.0054 J (0.0072)	
Chrysene	760	190000	230	0.066 (0.015)	0.24 (0.0076)	ND (0.0081)	0.77 (0.038)	0.041 (0.016)	1.5 (0.015)	0.0021 J (0.0079)	0.12 (0.016)	0.0022 J (0.015)	0.15 (0.041)	0.031 (0.0072)	
Fluorene	130000	190000	3800	0.12 (0.015)	0.016 (0.0076)	0.0056 J (0.0081)	0.19 (0.038)	0.22 (0.016)	0.43 (0.015)	0.18 (0.0079)	0.0093 J (0.016)	0.1 (0.015)	0.0053 J (0.041)	0.066 (0.0072)	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	8.3 (0.15)	0.073 (0.0076)	0.019 (0.0081)	0.14 (0.038)	0.33 (0.016)	0.085 (0.015)	0.11 (0.0079)	0.0056 J (0.016)	0.19 (0.015)	0.25 (0.041)	2.8 (0.036)	
Phenanthrene	190000	190000	10000	0.3 (0.015)	0.23 (0.0076)	0.0067 J (0.0081)	0.88 (0.038)	0.15 (0.016)	3 (0.037)	0.16 (0.0079)	0.13 (0.016)	0.05 (0.015)	0.059 (0.041)	0.16 (0.0072)	
Pyrene	96000	190000	2200	0.13 (0.015)	0.35 (0.0076)	ND (0.0081)	1.2 (0.038)	0.062 (0.016)	3.1 (0.037)	0.0076 J (0.0079)	0.21 (0.016)	0.0031 J (0.015)	0.17 (0.041)	0.1 (0.0072)	
Metals															
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	1000	190000	450	8.6 (0.33)	46.8 (0.42)	6.7 (0.49)	113 (0.39)	28.5 (0.36)	70.1 (0.33)	8 (0.35)	29.4 (0.4)	9.1 (0.34)	359 (0.44)	25.7 (0.38)	
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-011 Soil - Surface 0 - 2 5/6/2015	AOI1_BH-14-011 Soil - Subsurface 14 - 16 5/11/2015	AOI1_BH-14-012 Soil - Surface 0 - 2 5/8/2015	AOI1_BH-14-012 Soil - Subsurface 14 - 16 5/14/2015	AOI1_BH-14-013 Soil - Surface 0 - 2 5/11/2015	AOI1_BH-14-013 Soil - Subsurface 4 - 6 5/11/2015	AOI1_BH-14-013 Soil - Subsurface 12 - 14 5/11/2015	AOI1_BH-14-017 Soil - Surface 0 - 2 5/12/2015	AOI1_BH-14-017 Soil - Subsurface 4 - 6 5/12/2015	AOI1_BH-14-017 Soil - Subsurface 12 - 14 5/12/2015	AOI1_BH-14-032 Soil - Surface 0 - 2 5/12/2015	
Matrix	Collection Depth (ft bgs)	Sample Date	Comments												
Volatile Organic Compounds															
Benzene	280	330	0.5	0.025 (0.0044)	<u>3.4 J (3.5)</u>	0.11 (0.0054)	<u>5.8 (0.36)</u>	ND (0.37)	ND (0.51)	<u>1.4 (0.64)</u>	ND (0.25)	<u>1 (0.3)</u>	ND (0.27)	ND (0.0056)	
Cumene	10000	10000	2500	ND (0.0044)	17.6 (3.5)	ND (0.0054)	12.1 (0.36)	17.5 (0.37)	16.7 (0.51)	5.3 (0.64)	0.6 (0.25)	19 (0.3)	2.9 (0.27)	NA	
Ethyl Benzene	880	1000	70	ND (0.0044)	8 (3.5)	ND (0.0054)	7.8 (0.36)	<u>72.2 (3.7)</u>	<u>112 (5.1)</u>	10.3 (0.64)	2.9 (0.25)	<u>108 (3)</u>	6.7 (0.27)	ND (0.0056)	
Methyl tert-butyl ether	8500	9800	2	ND (0.0044)	ND (3.5)	ND (0.0054)	ND (0.36)	ND (0.37)	ND (0.51)	ND (0.64)	ND (0.25)	ND (0.3)	ND (0.27)	NA	
Toluene	10000	10000	100	0.0099 (0.0044)	5.7 (3.5)	0.048 (0.0054)	2.9 (0.36)	0.94 (0.37)	2.4 (0.51)	1.9 (0.64)	1.1 (0.25)	32.7 (3)	0.39 (0.27)	ND (0.0056)	
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0044)	31.3 (3.5)	ND (0.0054)	39.2 (3.6)	<u>903 (36.7)</u>	<u>431 (50.6)</u>	160 (6.4)	53.1 (2.5)	<u>487 (30.2)</u>	287 (26.9)	NA	
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0044)	10.8 (3.5)	ND (0.0054)	14.6 (0.36)	<u>359 (36.7)</u>	<u>246 (5.1)</u>	47.4 (6.4)	16.2 (0.25)	<u>222 (3)</u>	88.4 (2.7)	NA	
Xylenes (total)	7900	9100	1000	ND (0.013)	31.9 (10.5)	0.0046 J (0.016)	22.4 (1.1)	457 (11)	619 (15.2)	59.6 (1.9)	34.1 (0.76)	631 (90.5)	183 (8.1)	ND (0.017)	
Semi-Volatile Organic Compounds															
Anthracene	190000	190000	350	0.0051 J (0.0083)	2.2 J (2.4)	ND (0.17)	5.8 J (16.7)	0.87 (0.17)	0.43 (0.18)	0.63 (0.16)	0.1 J (0.15)	0.17 (0.09)	0.4 (0.16)	NA	
Benzo(a)anthracene	130	190000	340	0.0074 J (0.0083)	0.98 J (2.4)	ND (0.17)	ND (16.7)	0.18 (0.17)	0.12 J (0.18)	1.8 (0.16)	0.046 J (0.15)	0.19 (0.09)	0.46 (0.16)	NA	
Benzo(a)pyrene	91	190000	46	0.0056 J (0.0083)	0.75 J (2.4)	ND (0.17)	ND (16.7)	0.17 (0.17)	0.085 J (0.18)	1.9 (0.16)	0.046 J (0.15)	0.31 (0.09)	0.44 (0.16)	NA	
Benzo(b)fluoranthene	76	190000	170	0.0081 J (0.0083)	1 J (2.4)	ND (0.17)	ND (16.7)	0.29 (0.17)	0.15 J (0.18)	3 (0.16)	0.077 J (0.15)	0.51 (0.09)	0.85 (0.16)	NA	
Benzo(g,h,i)perylene	190000	190000	180	0.0031 J (0.0083)	ND (2.4)	ND (0.17)	ND (16.7)	0.29 (0.17)	0.089 J (0.18)	0.66 (0.16)	0.056 J (0.15)	0.33 (0.09)	0.3 (0.16)	NA	
Chrysene	760	190000	230	0.0064 J (0.0083)	2.2 J (2.4)	ND (0.17)	ND (16.7)	0.26 (0.17)	0.17 J (0.18)	1.8 (0.16)	0.05 J (0.15)	0.29 (0.09)	0.82 (0.16)	NA	
Fluorene	130000	190000	3800	0.0054 J (0.0083)	5 (2.4)	ND (0.17)	4.7 J (16.7)	1.9 (0.17)	1.1 (0.18)	1.1 (0.16)	0.17 (0.15)	0.77 (0.09)	2 (0.16)	NA	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	0.0026 J (0.0083)	<u>69.2 (2.4)</u>	ND (0.17)	19 (16.7)	<u>27 (0.17)</u>	<u>57.1 (0.92)</u>	12.8 (0.16)	9.6 (0.15)	<u>72.3 (0.9)</u>	140 (0.82)	NA	
Phenanthrene	190000	190000	10000	0.017 (0.0083)	9.3 (2.4)	ND (0.17)	19.1 (16.7)	2.6 (0.17)	1.6 (0.18)	1.9 (0.16)	0.25 (0.15)	1.1 (0.09)	2.9 (0.16)	NA	
Pyrene	96000	190000	2200	0.012 (0.0083)	3.1 (2.4)	ND (0.17)	9.7 J (16.7)	1.5 (0.17)	0.67 (0.18)	3 (0.16)	0.16 (0.15)	0.57 (0.09)	1.9 (0.16)	NA	
Metals															
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.55 (0.43)	
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 (1.7)	
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 J (0.26)	
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1 (0.43)	
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.4 (0.86)	
Lead	1000	190000	450	28.2 (0.48)	<u>160000 (52.7)</u>	13.9 (0.56)	<u>3360 (0.39)</u>	<u>524 (0.5)</u>	381 (0.41)	<u>664 (0.52)</u>	133 (0.78)	123 (0.44)	<u>507 (0.5)</u>	3.4 (0.86)	
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.011 J (0.11)	
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6 J (1.7)	
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.69)	
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.6 (0.86)	

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results

Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-033 Soil - Surface 0 - 2 5/12/2015	AOI1_BH-14-033 Soil - Subsurface 2 - 4 5/12/2015	AOI1_BH-14-034 Soil - Surface 0 - 2 5/12/2015	AOI1_BH-14-034 Soil - Subsurface 2 - 4 5/12/2015	AOI1_BH-14-035 Soil - Surface 0 - 2 5/14/2015	AOI1_BH-14-035 Soil - Subsurface 12 - 14 5/15/2015	AOI1_BH-14-035 Soil - Subsurface 14 - 16 5/15/2015	AOI1_BH-14-036 Soil - Surface 0 - 2 5/14/2015	AOI1_BH-14-036 Soil - Subsurface 6 - 8 5/14/2015	AOI1_BH-14-042 Soil - Surface 0 - 2 5/7/2015	AOI1_BH-14-042 Soil - Subsurface 6 - 8 5/7/2015	
Matrix	Collection Depth (ft bgs)	Sample Date	Comments												
Volatile Organic Compounds															
Benzene	280	330	0.5	NA	NA	NA	NA	0.39 (0.21)	0.074 (0.0042)	0.049 (0.0042)	<u>0.58 (0.27)</u>	0.16 J (0.24)	ND (0.0056)	ND (0.27)	
Cumene	10000	10000	2500	NA	NA	NA	NA	0.74 (0.21)	0.0065 (0.0042)	0.0041 J (0.0042)	0.29 (0.27)	0.51 (0.24)	0.043 (0.0056)	2.2 (0.27)	
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	0.15 J (0.21)	ND (0.0042)	ND (0.0042)	0.17 J (0.27)	ND (0.24)	0.059 (0.0056)	0.29 (0.27)	
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	ND (0.21)	ND (0.0042)	ND (0.0042)	ND (0.27)	ND (0.24)	ND (0.0056)	ND (0.27)	
Toluene	10000	10000	100	NA	NA	NA	NA	0.36 (0.21)	0.016 (0.0042)	0.013 (0.0042)	0.36 (0.27)	ND (0.24)	0.0091 (0.0056)	ND (0.27)	
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	10.6 (0.21)	0.0019 J (0.0042)	0.0041 J (0.0042)	0.95 (0.27)	0.18 J (0.24)	14.1 (0.28)	0.97 (0.27)	
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	0.5 (0.21)	ND (0.0042)	ND (0.0042)	0.23 J (0.27)	ND (0.24)	0.23 (0.0056)	ND (0.27)	
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	0.6 J (0.64)	ND (0.013)	ND (0.013)	0.51 J (0.8)	ND (0.73)	0.33 (0.017)	ND (0.81)	
Semi-Volatile Organic Compounds															
Anthracene	190000	190000	350	NA	NA	NA	NA	0.6 (0.069)	0.01 (0.0082)	0.0062 J (0.008)	0.36 (0.081)	0.062 (0.0082)	0.37 (0.16)	0.29 (0.17)	
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	ND (0.069)	0.012 (0.0082)	0.0059 J (0.008)	0.2 (0.081)	0.035 (0.0082)	0.09 J (0.16)	0.049 J (0.17)	
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	ND (0.069)	0.0092 (0.0082)	0.0041 J (0.008)	0.17 (0.081)	0.03 (0.0082)	0.023 J (0.16)	ND (0.17)	
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	ND (0.069)	0.014 (0.0082)	0.0059 J (0.008)	0.32 (0.081)	0.049 (0.0082)	0.055 J (0.16)	ND (0.17)	
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	ND (0.069)	0.0034 J (0.0082)	0.0019 J (0.008)	0.11 (0.081)	0.015 (0.0082)	ND (0.16)	ND (0.17)	
Chrysene	760	190000	230	NA	NA	NA	NA	ND (0.069)	0.0088 (0.0082)	0.0046 J (0.008)	0.2 (0.081)	0.032 (0.0082)	0.19 (0.16)	0.1 J (0.17)	
Fluorene	130000	190000	3800	NA	NA	NA	NA	1.3 (0.069)	0.07 (0.0082)	0.014 (0.008)	2.5 (0.081)	0.2 (0.0082)	1.4 (0.16)	1.2 (0.17)	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	NA	NA	NA	NA	3.8 (0.069)	0.089 (0.0082)	0.023 (0.008)	4.9 (0.081)	0.28 (0.0082)	4.2 (0.16)	3.3 (0.17)	
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	1.6 (0.069)	0.072 (0.0082)	0.026 (0.008)	2 (0.081)	0.16 (0.0082)	3.5 (0.16)	1.9 (0.17)	
Pyrene	96000	190000	2200	NA	NA	NA	NA	0.23 (0.069)	0.019 (0.0082)	0.0082 (0.008)	0.63 (0.081)	0.085 (0.0082)	0.29 (0.16)	0.15 J (0.17)	
Metals															
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	1000	190000	450	184 (0.34)	366 (0.37)	371 (0.37)	341 (0.37)	2 (0.68)	29.9 J (0.32)	10.9 J (0.43)	218 (0.37)	62.2 (0.47)	13.4 (0.44)	3.4 (0.52)	
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results

Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	Non-Res Direct Contact with Surface Soil MSCs	Non-Res Direct Contact with Subsurface Soil MSCs	Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤2500	AOI1_BH-14-043 Soil - Surface 0 - 2 5/8/2015	AOI1_BH-14-043 Soil - Subsurface 6 - 8 5/8/2015	AOI1-BH-15-002 Soil - Surface 0 - 2 11/24/2015	AOI1-BH-15-001 Soil - Subsurface 14 - 15 11/24/2015	AOI1-BH-15-002 Soil - Subsurface 14 - 16 11/24/2015	AOI1-BH-15-003 Soil - Surface 1 - 2 12/10/2015	AOI-2_BH-13-52 Soil - Surface 0 - 2 3/14/2013	AOI-2_BH-13-52 Soil - Subsurface 4 - 6 3/14/2013	PB 30-E Soil - Subsurface 4.5 - 5 1/20/2012	PB 30-N Soil - Subsurface 4.5 - 5 1/20/2012	PB 30-NE Soil - Subsurface 2.5 - 3 1/20/2012	
Matrix Collection Depth (ft bgs) Sample Date Comments															
Volatile Organic Compounds															
Benzene	280	330	0.5	ND (0.0058)	0.0065 (0.006)	NA	NA	NA	NA	0.217 (0.1)	ND (0.11)	<u>3.6 (0.12)</u>	<u>0.51 (0.028)</u>	<u>1.1 (0.079)</u>	
Cumene	10000	10000	2500	0.005 J (0.0058)	0.16 (0.006)	NA	NA	NA	NA	0.0486 J (0.5)	1.74 (0.54)	6.8 (0.24)	0.72 (0.056)	10 (0.16)	
Ethyl Benzene	880	1000	70	ND (0.0058)	0.015 (0.006)	NA	NA	NA	NA	0.0837 J (0.1)	ND (0.11)	4.4 (0.24)	1.9 (0.056)	2.5 (0.16)	
Methyl tert-butyl ether	8500	9800	2	ND (0.0058)	ND (0.006)	NA	NA	NA	NA	ND (0.1)	ND (0.11)	ND (0.12)	0.032 J (0.028)	ND (0.079)	
Toluene	10000	10000	100	ND (0.0058)	0.0051 J (0.006)	NA	NA	NA	NA	0.125 (0.1)	ND (0.11)	0.59 J (0.24)	0.067 J (0.056)	0.25 J (0.16)	
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0058)	0.47 (0.006)	NA	NA	NA	NA	0.0935 J (0.5)	ND (0.54)	87 (0.59)	14 (0.056)	14 (0.16)	
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0058)	0.039 (0.006)	NA	NA	NA	NA	0.0308 J (0.5)	0.0567 J (0.54)	25 (0.24)	2.5 (0.056)	30 (0.16)	
Xylenes (total)	7900	9100	1000	ND (0.017)	0.032 (0.018)	NA	NA	NA	NA	0.31 (0.1)	0.707 (0.11)	47 (0.24)	2.8 (0.056)	2.3 (0.16)	
Semi-Volatile Organic Compounds															
Anthracene	190000	190000	350	0.058 J (0.16)	0.031 J (0.17)	NA	NA	NA	NA	0.128 (0.039)	ND (0.038)	ND (0.016)	0.046 (0.00081)	0.11 (0.00085)	
Benzo(a)anthracene	130	190000	340	ND (0.16)	ND (0.17)	NA	NA	NA	NA	0.351 (0.039)	0.0158 J (0.038)	0.0046 (0.0004)	0.038 (0.0004)	0.065 (0.00042)	
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.17)	NA	NA	NA	NA	0.366 (0.039)	ND (0.038)	0.0029 (0.0004)	0.032 (0.0004)	0.059 (0.00042)	
Benzo(b)fluoranthene	76	190000	170	0.035 J (0.16)	ND (0.17)	NA	NA	NA	NA	0.32 (0.039)	ND (0.038)	0.003 (0.00032)	0.027 (0.00032)	0.044 (0.00034)	
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.17)	NA	NA	NA	NA	0.363 (0.039)	ND (0.038)	0.0046 J (0.0024)	0.056 (0.0024)	0.1 (0.0025)	
Chrysene	760	190000	230	0.17 (0.16)	ND (0.17)	NA	NA	NA	NA	0.373 (0.039)	0.0133 J (0.038)	0.018 (0.0036)	0.067 (0.0036)	0.14 (0.0038)	
Fluorene	130000	190000	3800	0.82 (0.16)	0.36 (0.17)	NA	NA	NA	NA	0.114 (0.039)	0.0586 (0.038)	0.022 (0.004)	0.1 (0.004)	0.45 (0.0042)	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	0.13 J (0.16)	0.92 (0.17)	NA	NA	NA	NA	0.0382 J (0.039)	ND (0.038)	9 (0.24)	2.2 (0.056)	0.54 J (0.16)	
Phenanthrene	190000	190000	10000	0.4 (0.16)	0.63 (0.17)	NA	NA	NA	NA	0.58 (0.039)	0.077 (0.038)	0.039 (0.0024)	0.16 (0.0024)	0.49 (0.0025)	
Pyrene	96000	190000	2200	0.088 J (0.16)	0.036 J (0.17)	NA	NA	NA	NA	0.511 (0.039)	0.0278 J (0.038)	ND (0.096)	ND (0.11)	ND (0.6)	
Metals															
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	1000	190000	450	9.7 (0.34)	19 (0.39)	6280 (23)	9.1 (2.1)	<u>1370 (6)</u>	1550 (6.5)	<u>455 (2.5)</u>	9.6 (2.4)	10.3 (0.259)	74.4 (0.257)	17.8 (0.277)	
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	Non-Res Direct	Non-Res Direct	Non-Residential	PB 30-NW	PB 30-PP	PB 30-S	PB 30-SE	PB 30-SW	PB 30-W	PB-201-LINE-4	PB-201-LINE-5	PB27_02272015	PB27_02272015	PB27-1-20151029
Matrix	Contact with	Contact with	Soil-to-GW MSCs	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Subsurface	Soil - Surface
Collection Depth (ft bgs)	Surface Soil MSCs	Subsurface Soil MSCs	Used Aquifer TDS≤2500	2.5 - 3	0 - 0.5	4.5 - 5	2.5 - 3	2.5 - 3	4.5 - 5	0 - 0.5	0.5	0.5	2	1.5 - 2
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Used Aquifer TDS≤2500	1/20/2012	1/20/2012	1/20/2012	1/20/2012	1/20/2012	1/20/2012	9/4/2007	9/4/2007	2/27/2015	2/27/2015	10/29/2015
Comments														
Volatile Organic Compounds														
Benzene	280	330	0.5	0.2 J (0.089)	0.014 (0.0006)	0.013 (0.0007)	0.047 J (0.033)	0.003 J (0.0005)	ND (0.0006)	0.23 (0.0063)	0.031 (0.0068)	1.23 (0.056)	0.697 (0.06)	0.966 (0.054)
Cumene	10000	10000	2500	2.2 (0.18)	0.002 J (0.001)	0.02 (0.001)	1.1 (0.066)	0.003 J (0.0009)	0.003 J (0.001)	ND (0.0063)	ND (0.0068)	0.0945 J (0.56)	0.127 J (0.6)	0.306 (0.22)
Ethyl Benzene	880	1000	70	4.1 (0.18)	ND (0.001)	0.007 J (0.001)	ND (0.066)	0.002 J (0.0009)	ND (0.001)	ND (0.0063)	ND (0.0068)	0.484 (0.11)	0.518 (0.12)	0.11 (0.11)
Methyl tert-butyl ether	8500	9800	2	0.37 J (0.089)	0.0007 J (0.0006)	0.001 J (0.0007)	ND (0.033)	0.0009 J (0.0005)	0.004 J (0.0006)	NA	NA	1.3 (0.11)	1.56 (0.12)	0.0957 J (0.11)
Toluene	10000	10000	100	0.46 J (0.18)	0.007 (0.001)	0.01 (0.001)	ND (0.066)	0.002 J (0.0009)	ND (0.001)	0.01 (0.0063)	0.0058 J (0.0068)	1.1 (0.11)	1.74 (0.12)	0.0758 J (0.11)
1,2,4-Trimethylbenzene	4700	5400	300	28 (0.18)	0.005 J (0.001)	0.006 J (0.001)	0.14 J (0.066)	0.002 J (0.0009)	ND (0.001)	NA	NA	0.499 (0.22)	0.861 (0.24)	1.34 (0.22)
1,3,5-Trimethylbenzene	4700	5400	93	2.4 (0.18)	ND (0.001)	ND (0.001)	0.11 J (0.066)	0.001 J (0.0009)	ND (0.001)	NA	NA	0.246 (0.22)	0.47 (0.24)	0.875 (0.22)
Xylenes (total)	7900	9100	1000	13 (0.18)	0.013 (0.001)	0.028 (0.001)	0.26 J (0.066)	0.005 (0.0009)	ND (0.001)	NA	NA	1.39 (0.11)	2.14 (0.12)	0.739 (0.11)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	0.05 (0.0081)	0.18 (0.0086)	0.11 (0.0079)	ND (0.03)	0.059 (0.0079)	ND (0.00078)	ND (0.42)	0.64 (0.45)	NA	NA	NA
Benzo(a)anthracene	130	190000	340	0.15 (0.004)	0.63 (0.0043)	0.13 (0.0039)	0.0035 (0.00041)	0.13 (0.0039)	0.0031 (0.00039)	0.53 (0.42)	3.2 (0.45)	NA	NA	NA
Benzo(a)pyrene	91	190000	46	0.23 (0.004)	0.74 (0.0043)	0.14 (0.0039)	0.0026 (0.00041)	0.16 (0.0039)	0.0039 (0.00039)	0.45 (0.42)	3.3 (0.45)	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	0.17 (0.0032)	0.63 (0.0034)	0.11 (0.0032)	0.0026 (0.00033)	0.13 (0.0031)	0.0028 (0.00031)	0.9 (0.42)	6.7 (0.45)	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	0.4 (0.024)	1.3 (0.026)	0.22 (0.024)	0.0054 J (0.0025)	0.28 (0.024)	0.0057 J (0.0024)	ND (0.42)	0.95 (0.45)	NA	NA	NA
Chrysene	760	190000	230	0.24 (0.036)	0.88 (0.039)	0.34 (0.036)	0.018 (0.0037)	0.26 (0.035)	0.0056 J (0.0035)	0.68 (0.42)	3.6 (0.45)	NA	NA	NA
Fluorene	130000	190000	3800	0.12 J (0.04)	0.11 J (0.043)	0.12 J (0.039)	0.049 (0.0041)	0.071 J (0.039)	ND (0.0039)	ND (0.42)	ND (0.45)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	ND (0.42)	0.86 (0.45)	NA	NA	NA
Naphthalene	66	77	25	1.5 (0.18)	ND (0.001)	0.006 J (0.001)	0.17 J (0.066)	ND (0.0009)	ND (0.001)	0.0029 J (0.0063)	0.0026 J (0.0068)	0.0863 J (0.56)	0.189 J (0.6)	0.199 J (0.54)
Phenanthrene	190000	190000	10000	0.27 (0.024)	0.75 (0.026)	0.37 (0.024)	ND (0.031)	0.23 (0.024)	0.0029 J (0.0024)	ND (0.42)	3.6 (0.45)	NA	NA	NA
Pyrene	96000	190000	2200	0.15 J (0.04)	1.3 (0.043)	ND (0.89)	ND (0.29)	0.11 J (0.039)	ND (0.0039)	1.1 (0.42)	7.1 (0.45)	NA	NA	NA
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	38.8 (0.259)	1830 (1.41)	367 (0.265)	22 (0.263)	<u>3540 (1.3)</u>	23.1 (0.251)	NA	NA	NA	NA	NA
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Notes:				NA		NA	NA	NA	NA				NA	

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	Non-Res Direct	Non-Res Direct	Non-Residential	PB27-1-20151029	PB27-2-20151029	PB27-2-20151029	PB27-3-20151029	PB27-3-20151029	PB27-4-20151029	PB27-4-20151029	PB27-4-20151029	PB33-01	PB33-01	PB33-02	PB33-02
Matrix	Non-Res Direct	Non-Res Direct	Soil-to-GW MSCs	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface
Collection Depth (ft bgs)	Contact with	Contact with	Used Aquifer	3.5 - 4	1 - 1.5	3 - 3.5	1.5 - 2	3 - 3.5	1.5 - 2	3 - 3.5	1.5 - 2	1	3	1	3.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	TDS≤2500	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015	10/29/2015	5/3/2019	5/3/2019	5/3/2019	5/3/2019
Comments															
Volatile Organic Compounds															
Benzene	280	330	0.5	<u>0.735 (0.061)</u>	0.0403 J (0.059)	<u>0.562 (0.069)</u>	0.0784 (0.053)	<u>2.76 (0.069)</u>	0.0717 (0.056)	<u>2.42 (0.055)</u>	0.024 J (0.22)	0.027 J (0.24)	0.3 J (0.33)	<u>0.96 (0.24)</u>	
Cumene	10000	10000	2500	0.0387 J (0.24)	1.77 (0.24)	6.85 (0.28)	ND (0.21)	8.34 (0.28)	0.0591 J (0.23)	5.19 (0.22)	0.12 J (0.22)	0.76 (0.24)	0.049 J (0.33)	1.3 (0.24)	
Ethyl Benzene	880	1000	70	ND (0.12)	0.138 (0.12)	0.307 (0.14)	ND (0.11)	1.54 (0.14)	0.0581 J (0.11)	40.2 (1.1)	0.046 J (0.22)	0.057 J (0.24)	0.089 J (0.33)	2.4 (0.24)	
Methyl tert-butyl ether	8500	9800	2	0.41 (0.12)	ND (0.12)	ND (0.14)	ND (0.11)	0.08 J (0.14)	ND (0.11)	ND (0.11)	ND (0.22)	ND (0.24)	0.035 J (0.33)	0.16 J (0.24)	
Toluene	10000	10000	100	ND (0.12)	ND (0.12)	0.163 (0.14)	ND (0.11)	0.625 (0.14)	0.0387 J (0.11)	1.92 (0.11)	0.032 J (0.22)	0.015 J (0.24)	0.15 J (0.33)	0.056 J (0.24)	
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.24)	0.128 J (0.24)	0.193 J (0.28)	ND (0.21)	2.9 (0.28)	0.0508 J (0.23)	125 (2.2)	0.16 J (0.22)	0.045 J (0.24)	0.084 J (0.33)	0.11 J (0.24)	
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.24)	0.0562 J (0.24)	0.0513 J (0.28)	ND (0.21)	5.1 (0.28)	ND (0.23)	45.3 (2.2)	0.05 J (0.22)	0.12 J (0.24)	0.048 J (0.33)	0.45 (0.24)	
Xylenes (total)	7900	9100	1000	0.0341 J (0.12)	0.249 (0.12)	0.606 (0.14)	ND (0.11)	1.53 (0.14)	0.0912 J (0.11)	156 (1.1)	0.096 J (0.22)	0.046 J (0.24)	0.62 (0.33)	0.43 (0.24)	
Semi-Volatile Organic Compounds															
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	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	NA	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.101 J (0.61)	2.35 (0.59)	2.47 (0.69)	ND (0.53)	1.17 (0.69)	0.0473 J (0.56)	12 (0.55)	0.15 J (0.22)	0.091 J (0.24)	0.048 J (0.33)	0.17 J (0.24)	
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	PB33-03	PB33-03	PB33-04	PB33-04	PB36-E	PB36-N	PB36-NE	PB36-NW	PB36-PP	PB36-S	PB36-SE			
Matrix	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Subsurface			
Collection Depth (ft bgs)	1	4	1	2.5 - 0	4.5 - 5	4.5 - 5	2.5 - 3	2.5 - 3	0 - 0.5	4.5 - 5	2.5 - 3			
Sample Date	5/3/2019	5/3/2019	5/3/2019	5/3/2019	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012			
Comments														
Volatile Organic Compounds														
Benzene	280	330	0.5	ND (0.25)	0.0004 J (0.005)	ND (0.006)	ND (0.006)	ND (0.0005)	<u>2.2 (0.027)</u>	0.057 J (0.031)	<u>1.6 (0.12)</u>	0.05 (0.0006)	ND (0.031)	ND (0.03)
Cumene	10000	10000	2500	0.035 J (0.25)	0.003 J (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	0.86 (0.053)	0.86 (0.062)	19 (0.24)	0.029 (0.001)	ND (0.062)	ND (0.06)
Ethyl Benzene	880	1000	70	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	4 (0.053)	0.14 J (0.062)	1.1 J (0.24)	0.2 (0.001)	ND (0.062)	ND (0.06)
Methyl tert-butyl ether	8500	9800	2	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	0.008 (0.0005)	0.1 J (0.027)	ND (0.031)	ND (0.12)	ND (0.0006)	ND (0.031)	ND (0.03)
Toluene	10000	10000	100	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	0.092 J (0.053)	0.11 J (0.062)	ND (0.24)	0.022 (0.001)	ND (0.062)	ND (0.06)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	0.11 J (0.053)	1.7 (0.062)	0.41 J (0.24)	0.21 J (0.065)	ND (0.062)	ND (0.06)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	0.15 J (0.053)	1.1 (0.062)	0.42 J (0.24)	0.12 (0.001)	ND (0.062)	ND (0.06)
Xylenes (total)	7900	9100	1000	ND (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	5.8 (0.053)	0.29 J (0.062)	0.94 J (0.24)	0.085 (0.001)	ND (0.062)	ND (0.06)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	NA	NA	NA	NA	ND (0.00081)	0.15 (0.00084)	ND (0.066)	ND (0.2)	ND (0.0008)	ND (0.027)	ND (0.04)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	ND (0.00041)	ND (0.031)	0.011 (0.00041)	0.024 (0.0004)	0.0037 (0.0004)	ND (0.0034)	0.0026 (0.00041)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	0.00065 J (0.00041)	0.0027 (0.00042)	0.01 (0.00041)	0.0067 (0.0004)	0.0052 (0.0004)	0.00071 J (0.00041)	0.0021 (0.00041)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	0.00057 J (0.00033)	ND (0.0064)	0.0091 (0.00033)	0.007 (0.00032)	0.0084 (0.00032)	ND (0.00092)	0.0021 (0.00033)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	ND (0.0024)	0.0031 J (0.0025)	0.019 (0.0025)	0.011 (0.0024)	0.03 (0.0024)	ND (0.0024)	0.0049 J (0.0025)
Chrysene	760	190000	230	NA	NA	NA	NA	ND (0.0037)	0.27 (0.0038)	0.02 (0.0037)	0.18 (0.0036)	0.011 (0.0036)	0.027 (0.0037)	0.011 (0.0037)
Fluorene	130000	190000	3800	NA	NA	NA	NA	ND (0.0041)	0.14 (0.0042)	0.096 (0.0041)	0.26 (0.004)	ND (0.004)	0.033 (0.0041)	0.076 (0.0041)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.037 J (0.25)	ND (0.005)	ND (0.006)	ND (0.006)	ND (0.001)	0.098 J (0.053)	0.096 J (0.062)	0.55 J (0.24)	0.01 (0.001)	ND (0.062)	0.062 J (0.06)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	ND (0.0024)	0.6 (0.0025)	ND (0.066)	0.65 (0.0024)	0.0078 (0.0024)	ND (0.025)	0.03 (0.0025)
Pyrene	96000	190000	2200	NA	NA	NA	NA	ND (0.0041)	ND (0.0042)	ND (0.47)	ND (0.42)	ND (0.016)	ND (0.064)	ND (0.32)
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	NA	NA	NA	NA	14.7 (0.26)	29.8 (0.282)	37.3 (0.265)	13.5 (0.261)	152 (0.257)	15.4 (0.268)	28.4 (0.273)
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤250

Abbreviations:

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

Table B
Historical Soil Sampling Results
Tank Group 02

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

Location	PB36-SW	PB36-W	PB-44-LINE-1	PB-44-LINE-2	PB-44-LINE-3	PB-44-LINE-4	PB-44-LINE-5	PB-44-LINE-6	PB-44-PER-1	PB-44-PER-2	PB-44-PER-3			
Matrix	Soil - Subsurface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface			
Collection Depth (ft bgs)	2.5 - 3	4.5 - 5	0.5	0.5	0.5	0.5	0.5	0.5	3 - 3.5	3 - 3.5	3 - 3.5			
Sample Date	1/18/2012	1/18/2012	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/4/2007	5/29/2007	5/29/2007	5/29/2007			
Comments														
Volatile Organic Compounds														
Benzene	280	330	0.5	ND (0.063)	0.057 J (0.032)	ND (0.006)	ND (0.0065)	0.0059 J (0.0062)	0.0049 J (0.0062)	ND (0.0057)	0.014 (0.0059)	ND,D (0.13)	ND,D (0.12)	ND,D (0.3)
Cumene	10000	10000	2500	1.5 (0.13)	0.067 J (0.064)	ND (0.006)	ND (0.0065)	ND (0.0062)	ND (0.0062)	ND (0.0057)	ND (0.0059)	2.6 D (0.13)	0.068 J,D (0.12)	ND,D (0.3)
Ethyl Benzene	880	1000	70	ND (0.13)	0.17 J (0.064)	ND (0.006)	ND (0.0065)	0.0053 J (0.0062)	ND (0.0062)	ND (0.0057)	0.0083 (0.0059)	10 D (0.13)	ND,D (0.12)	0.37 D (0.3)
Methyl tert-butyl ether	8500	9800	2	ND (0.063)	0.42 (0.032)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	ND (0.13)	ND (0.064)	0.0037 J (0.006)	ND (0.0065)	0.0064 (0.0062)	0.0027 J (0.0062)	ND (0.0057)	ND (0.0059)	ND,D (0.13)	ND,D (0.12)	0.39 D (0.3)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.13)	2 (0.064)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.13)	0.79 (0.064)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	ND (0.13)	0.54 (0.064)	0.0063 (0.006)	0.0028 J (0.0065)	0.01 (0.0062)	0.0031 J (0.0062)	ND (0.0057)	0.041 (0.0059)	16 D (0.13)	ND,D (0.12)	3.2 D (0.3)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	ND (0.063)	ND (0.00082)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	ND (0.0096)	0.0014 J (0.00041)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	0.002 (0.00042)	0.0013 J (0.00041)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	0.0036 (0.00034)	0.0014 (0.00033)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	0.0035 J (0.0025)	ND (0.0025)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	0.071 (0.0038)	ND (0.0037)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	0.19 (0.0042)	ND (0.0041)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.13)	0.38 (0.064)	0.0058 J (0.006)	0.0029 J (0.0065)	0.0086 (0.0062)	0.0041 J (0.0062)	0.004 J (0.0057)	0.0083 (0.0059)	5.1 D (0.13)	0.099 J,D (0.12)	0.78 D (0.3)
Phenanthrene	190000	190000	10000	0.19 (0.0025)	0.0053 J (0.0025)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	ND (0.49)	0.0044 J (0.0041)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	90.4 (0.274)	11.4 (0.276)	<u>480 (0.6)</u>	320 (0.65)	340 (0.62)	240 (0.62)	310 (0.57)	430 (0.59)	77 (0.58)	14 (0.64)	430 (0.59)
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤250

Abbreviations:

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

Table B
Historical Soil Sampling Results
Tank Group 02

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

Location	PB-44-PER-4	PB-44-PER-5	PB-44-PER-6	PB-44-SUB-1	PB-44-SUB-2	PB-44-SUB-3	PES_PB42_001	PES_PB42_002	IST_12152015_1_7	IST_12152015_1_8	PH83-1			
Matrix	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface	Soil - Subsurface			
Collection Depth (ft bgs)	3 - 3.5	3 - 3.5	3 - 3.5	5 - 5.5	5 - 5.5	5 - 5.5	3 - 3.5	4 - 4.5	2	2	2.5 - 3			
Sample Date	5/29/2007	5/29/2007	5/29/2007	5/29/2007	5/29/2007	5/29/2007	8/24/2015	8/24/2015	12/15/2015	12/15/2015	11/4/2013			
Comments														
Volatile Organic Compounds														
Benzene	280	330	0.5	ND,D (0.28)	ND,D (0.13)	ND,D (0.13)	ND,D (0.12)	ND,D (0.16)	ND,D (0.29)	ND (0.07)	0.0374 J (0.087)	0.197 (0.046)	ND (0.00057)	0.0277 J (0.11)
Cumene	10000	10000	2500	0.2 J,D (0.28)	0.29 D (0.13)	0.46 D (0.13)	ND,D (0.12)	ND,D (0.16)	ND,D (0.29)	1.15 (0.28)	1.33 (0.35)	2.99 (0.18)	ND (0.0023)	3.24 (0.56)
Ethyl Benzene	880	1000	70	0.36 D (0.28)	0.08 J,D (0.13)	ND,D (0.13)	ND,D (0.12)	0.091 J,D (0.16)	ND,D (0.29)	0.0616 J (0.14)	0.066 J (0.17)	2.84 (0.092)	ND (0.0011)	0.505 (0.11)
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.17)	ND (0.092)	ND (0.0011)	ND (0.11)
Toluene	10000	10000	100	0.23 J,D (0.28)	ND,D (0.13)	ND,D (0.13)	ND,D (0.12)	ND,D (0.16)	ND,D (0.29)	ND (0.14)	ND (0.17)	1.92 (0.092)	ND (0.0011)	0.146 (0.11)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	0.294 (0.28)	0.406 (0.35)	33 (0.92)	ND (0.0023)	6.68 (0.56)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	0.0748 J (0.28)	0.149 J (0.35)	17.1 (0.18)	ND (0.0023)	2.66 (0.56)
Xylenes (total)	7900	9100	1000	1.7 D (0.28)	0.072 J,D (0.13)	ND,D (0.13)	ND,D (0.12)	0.095 J,D (0.16)	0.96 D (0.29)	NA	NA	47.6 (0.46)	ND (0.0011)	2.66 (0.11)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	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	NA	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.66 D (0.28)	0.15 D (0.13)	ND,D (0.13)	ND,D (0.12)	ND,D (0.16)	0.15 J,D (0.29)	0.608 J (0.7)	ND (0.87)	<u>27.8 (2.3)</u>	ND (0.0057)	0.99 (0.56)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	<u>1100 (0.6)</u>	51 (0.62)	130 (0.61)	10 (0.53)	26 (0.53)	<u>690 (0.64)</u>	NA	NA	NA	NA	10.7 (0.96)
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤250

Abbreviations:

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

Table B
Historical Soil Sampling Results
Tank Group 02

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

Location	PH83-2	PH83-3	PH83-4	PH83-5	PH83-BG1	PH83-BG2	PH83-BG2	PH83-BG3	S-205	S-298	S-389D			
Matrix	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Subsurface	Soil - Surface	Soil - Surface	Soil - Surface	Soil - Surface			
Collection Depth (ft bgs)	1 - 1.5	2.5 - 3	1.5 - 2	1.5 - 2	0.5 - 1	0.5 - 1	3.5 - 4	0.5 - 1	1.5 - 2	1 - 2	0 - 2			
Sample Date	11/4/2013	11/4/2013	11/5/2013	11/5/2013	11/4/2013	11/4/2013	11/4/2013	11/4/2013	3/10/2005	5/25/2010	12/2/2013			
Comments														
Volatile Organic Compounds														
Benzene	280	330	0.5	0.031 J (0.11)	ND (0.11)	0.477 (0.11)	ND (0.00096)	0.106 J (0.13)	0.00053 J (0.0011)	ND (0.0011)	ND (0.00088)	ND (0.003)	<u>1.2 J (5.3)</u>	0.0026 J (0.0051)
Cumene	10000	10000	2500	0.0686 J (0.57)	1.89 (0.53)	2.51 (0.57)	ND (0.0048)	1.59 (0.64)	ND (0.0055)	ND (0.0053)	ND (0.0044)	ND (0.003)	ND (5.3)	ND (0.0051)
Ethyl Benzene	880	1000	70	0.246 (0.11)	0.538 (0.11)	2.55 (0.11)	ND (0.00096)	0.163 (0.13)	ND (0.0011)	ND (0.0011)	ND (0.00088)	ND (0.003)	ND (5.3)	ND (0.0051)
Methyl tert-butyl ether	8500	9800	2	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.00096)	ND (0.13)	ND (0.0011)	ND (0.0011)	ND (0.00088)	ND (0.003)	ND (5.3)	ND (0.0051)
Toluene	10000	10000	100	0.233 (0.11)	0.257 (0.11)	0.0835 J (0.11)	ND (0.00096)	0.126 J (0.13)	0.00044 J (0.0011)	ND (0.0011)	0.00018 J (0.00088)	ND (0.003)	ND (5.3)	ND (0.0051)
1,2,4-Trimethylbenzene	4700	5400	300	0.226 J (0.57)	8.77 (0.53)	0.0955 J (0.57)	ND (0.0048)	0.223 J (0.64)	0.00045 J (0.0055)	ND (0.0053)	ND (0.0044)	NA	ND (5.3)	ND (0.0051)
1,3,5-Trimethylbenzene	4700	5400	93	0.0574 J (0.57)	3.35 (0.53)	0.577 (0.57)	ND (0.0048)	0.0829 J (0.64)	ND (0.0055)	ND (0.0053)	ND (0.0044)	NA	ND (5.3)	ND (0.0051)
Xylenes (total)	7900	9100	1000	0.678 (0.11)	3.89 (0.11)	0.966 (0.11)	ND (0.00096)	0.31 (0.13)	0.00063 J (0.0011)	ND (0.0011)	0.00031 J (0.00088)	ND (0.003)	ND (5.3)	ND (0.0154)
Semi-Volatile Organic Compounds														
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	1.6 (0.19)	0.406 (0.16)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	2.5 (0.19)	1.7 (0.16)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	1.5 (0.19)	2.33 (0.16)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	2.1 (0.19)	2.32 (0.16)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	0.66 (0.19)	1.11 (0.16)
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	2.7 (0.19)	2.21 (0.16)
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	3.3 (0.19)	0.247 (0.16)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.57)	1.45 (0.53)	0.246 J (0.57)	ND (0.0048)	0.391 J (0.64)	ND (0.0055)	ND (0.0053)	ND (0.0044)	ND (0.4)	1.4 (0.19)	0.584 (0.16)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	6.9 (1.9)	1.94 (0.16)
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.4)	5.5 (1.9)	3.65 (0.16)
Metals														
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	25.2 (0.95)	10.3 (0.99)	13.2 (0.96)	99.5 (0.95)	170 (0.93)	6720 (9.6)	<u>1400 (9.3)</u>	60.3 (0.85)	8.46 (2.38)	96 (0.224)	2590 (0.41)
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 (1.2)
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface 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 B
Historical Soil Sampling Results
Tank Group 02

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

Location	S-389D	S-403	S-403	S-403	S-405	S-405	S-405	S-417	S-417			
Matrix	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Subsurface	Soil - Surface	Soil - Subsurface	Soil - Subsurface	Soil - Surface	Soil - Subsurface			
Collection Depth (ft bgs)	22 - 24	0 - 2	8 - 10	26 - 28	0 - 2	12 - 14	24 - 26	0 - 2	12 - 14			
Sample Date	12/11/2013	11/18/2014	12/10/2014	12/10/2014	11/24/2014	12/9/2014	12/9/2014	11/19/2014	2/19/2015			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.323 (0.225)	0.015 (0.0052)	0.22 (0.2)	ND (0.22)	0.031 (0.0063)	ND (0.0049)	0.22 (0.2)	0.07 (0.0045)	<u>3.9 (0.22)</u>
Cumene	10000	10000	2500	4.25 (0.225)	ND (0.0052)	ND (0.2)	1.1 (0.22)	ND (0.0063)	ND (0.0049)	0.96 (0.2)	0.035 (0.0045)	2.7 (0.22)
Ethyl Benzene	880	1000	70	7.13 (0.225)	ND (0.0052)	ND (0.2)	ND (0.22)	0.014 (0.0063)	ND (0.0049)	2.1 (0.2)	0.12 (0.0045)	21.7 (2.2)
Methyl tert-butyl ether	8500	9800	2	ND (0.225)	0.0076 (0.0052)	ND (0.2)	ND (0.22)	0.0083 (0.0063)	ND (0.0049)	ND (0.2)	0.017 (0.0045)	<u>2.1 (0.22)</u>
Toluene	10000	10000	100	0.388 (0.225)	ND (0.0052)	ND (0.2)	ND (0.22)	0.0072 (0.0063)	ND (0.0049)	ND (0.2)	ND (0.0045)	34.6 (2.2)
1,2,4-Trimethylbenzene	4700	5400	300	52.1 (4.5)	ND (0.0052)	ND (0.2)	ND (0.22)	0.023 (0.0063)	ND (0.0049)	6.7 (0.2)	0.012 (0.0045)	60.3 (2.2)
1,3,5-Trimethylbenzene	4700	5400	93	12.1 (0.225)	ND (0.0052)	ND (0.2)	ND (0.22)	0.0079 (0.0063)	ND (0.0049)	3 (0.2)	0.0049 (0.0045)	21.5 (2.2)
Xylenes (total)	7900	9100	1000	8.37 (0.676)	ND (0.016)	0.6 J (0.6)	ND (0.65)	0.032 (0.019)	ND (0.015)	1.8 (0.61)	0.12 (0.014)	120 (6.6)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	0.467 (0.152)	0.3 (0.15)	0.042 (0.0078)	0.036 (0.0075)	0.065 (0.039)	ND (0.0087)	0.034 (0.0079)	0.034 (0.0077)	0.083 (0.0077)
Benzo(a)anthracene	130	190000	340	0.437 (0.152)	1.1 (0.15)	0.013 (0.0078)	0.0086 (0.0075)	0.16 (0.039)	ND (0.0087)	0.0097 (0.0079)	0.039 (0.0077)	0.059 (0.0077)
Benzo(a)pyrene	91	190000	46	0.368 (0.152)	1.2 (0.15)	0.0085 (0.0078)	0.0044 J (0.0075)	0.2 (0.039)	0.0016 J (0.0087)	0.0053 J (0.0079)	0.032 (0.0077)	0.038 (0.0077)
Benzo(b)fluoranthene	76	190000	170	0.452 (0.152)	2 (0.15)	0.016 (0.0078)	0.0077 (0.0075)	0.32 (0.039)	0.0028 J (0.0087)	0.011 (0.0079)	0.049 (0.0077)	0.048 (0.0077)
Benzo(g,h,i)perylene	190000	190000	180	0.186 (0.152)	0.42 (0.15)	0.0042 J (0.0078)	ND (0.0075)	0.16 (0.039)	ND (0.0087)	ND (0.0079)	0.019 (0.0077)	0.02 (0.0077)
Chrysene	760	190000	230	0.548 (0.152)	1.4 (0.15)	0.014 (0.0078)	0.013 (0.0075)	0.29 (0.039)	ND (0.0087)	0.016 (0.0079)	0.047 (0.0077)	0.057 (0.0077)
Fluorene	130000	190000	3800	0.408 (0.152)	0.12 J (0.15)	0.15 (0.0078)	0.21 (0.0075)	0.054 (0.039)	ND (0.0087)	0.33 (0.0079)	0.049 (0.0077)	0.13 (0.0077)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	2.86 (0.152)	0.42 (0.15)	0.11 (0.0078)	0.22 (0.0075)	0.76 (0.039)	ND (0.0087)	3.6 (0.039)	0.22 (0.0077)	8 (0.077)
Phenanthrene	190000	190000	10000	1.17 (0.152)	1.3 (0.15)	0.25 (0.0078)	0.3 (0.0075)	0.3 (0.039)	0.0042 J (0.0087)	0.44 (0.0079)	0.16 (0.0077)	0.31 (0.0077)
Pyrene	96000	190000	2200	0.927 (0.152)	2.1 (0.15)	0.044 (0.0078)	0.034 (0.0075)	0.37 (0.039)	ND (0.0087)	0.032 (0.0079)	0.11 (0.0077)	0.15 (0.0077)
Metals												
Arsenic	61	190000	29	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)				NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	<u>494 (0.43)</u>	<u>579 (0.43)</u>	11.1 (0.5)	6.5 (0.39)	402 (0.5)	15.1 (0.48)	7.9 (0.41)	46.7 (0.42)	8 (0.41)
Mercury	510	190000	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	16000	190000	26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- Only compounds with at least one detection are shown.
- D is an unknown qualifier.
- Boldfaced concentrations exceed the Non-Res Direct Contact with Surface Soil MSCs and the Non-Res Direct Contact with Subsurface Soil MSCs.
- Underlined concentrations exceed the Non-Residential Soil-to-GW MSCs Used Aquifer TDS≤250

Abbreviations:

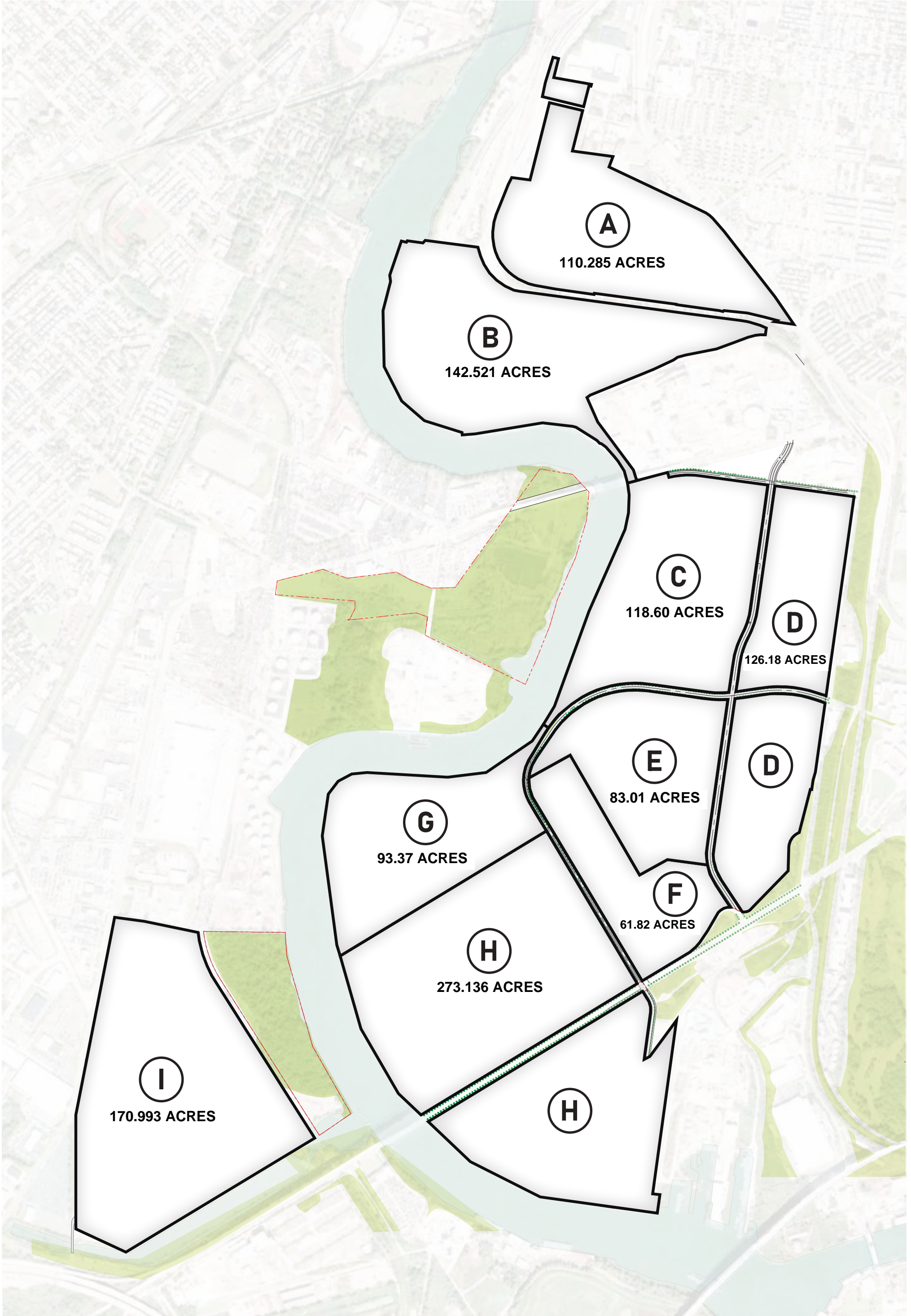
- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.

Appendix C

Individual Parcel Map



INDIVIDUAL PARCEL MAP



Appendix D

Tank Registration Amendment Forms





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 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 W. Passyunk Ave					
Address Last Line – City		State	ZIP+4	Country	
Philadelphia		PA	19141-5299	USA	
Client Contact Last Name		First Name	MI	Suffix	
Bowman		Gary	P	Sr	
Client Contact Title		Phone	Ext		
		610 636-4574			
E-mail Address				FAX	
Gbowman@northtar.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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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"/>

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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"/>

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 #
	001A					
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	01/12/2021
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
250 E. Adams Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title	Phone	Ext.

E-mail Address
Gbowman@northtar.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
001 A	Kristian Satterthwaite		5081	AFR	1557		

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#



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 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 W. Passyunk Ave				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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@northtar.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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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
019A	T	R	F	1/1/1976	01/15/2021	3,410,400	Gasoline ComponentsI			
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# 51-33620

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 #
	019A					
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 Title	1/15/21 Date
Owner Signature		

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		
250 E. Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
E-mail Address				
Gbowman@northtar.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
019 A	Kristian Satterthwaite		5081	AFR	1557		

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#



January 27, 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 #S1-33620 - 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	S1-33620	020A	PH 28	P-503	1/25/2021

This AST (Tank #020A) was a 3,410,400-gallon tank which formerly stored Alkyate. The tank was removed 1/25/2021.

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:we
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#
	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 (2830-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 W. Passyunk Ave				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	First Name	MI	Suffix	
Bowman	Gary	P	Sr	
Client Contact Title	Phone	Ext		
President	810 636-4574			
E-mail Address	FAX			
Gbowman@northtar.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

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
020A	T	R	F	1/1/1956	01/25/2021	3,410,400	Alkyale			
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 Phita 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 #
	020A					
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 obtained.

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

<u>Owner Signature</u>	<u>President</u>	<u>01/26/2021</u>
	<u>Title</u>	<u>Date</u>

Information & Invoices should be sent to:

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

<u>Organization Name or Registered Fictitious Name</u>		<u>Employer ID# (EIN)</u>		<u>Dun & Bradstreet ID#</u>
<u>Northstar Contracting Group, Inc.</u>				
<u>Individual Last Name</u>	<u>First Name</u>	<u>MI</u>	<u>Suffix</u>	<u>SSN</u>
<u>Bowman</u>	<u>Gary</u>	<u>P</u>	<u>Sr</u>	
<u>Additional Individual Last Name</u>	<u>First Name</u>	<u>MI</u>	<u>Suffix</u>	<u>SSN</u>
<u>Mailing Address Line 1</u>		<u>Mailing Address Line 2</u>		
<u>250 E. Adams Avenue</u>				
<u>Address Last Line - City</u>		<u>State</u>	<u>ZIP+4</u>	<u>Country</u>
<u>Philadelphia</u>		<u>PA</u>	<u>19124</u>	<u>USA</u>
<u>Contact Title</u>			<u>Phone</u>	<u>Ext.</u>
<u>President</u>				
<u>E-mail Address</u>				
<u>Gbowman@northstar.com</u>				
<u>Client to Site (Facility) Relationship</u>				

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 herein 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
020 A	Kristian Satterthwaite		5061	AFR	1567	<i>Kristian Satterthwaite</i>	1/7/2021

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 listed 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#



February 22, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

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

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JDZ Environmental, Inc.'s (JDZ's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Forms to change the status to permanently closed for two (2) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	021 A	PB 29	P-504	2/9/2021
Point Breeze Refinery	51-33620	085A	PB 664	P-564 A	2/9/2021

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

Enclosures: JDZ letter
Storage Tank Registration Forms (Point Breeze)

cc:
Robert Armstrong (Northstar)
Paul Masser (Northstar)
Kris Satterthwaite (JDZ Environmental)

Kassahun Sellasse (AMS)
Thomas Barsley (AMS)
Edward Wiener (AMS)

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

Office: 215.729.3220
Fax: 215.729.1557
www.repsg.com



February 15, 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	021A	PB 29	P-504	2/9/2021

This AST (Tank #021A) was a 2,935,800-gallon tank which formerly stored heavy reformate. The tank was removed 2/9/2021.

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.

51-33820 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 W. Passyunk Ave				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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						
Date Collection Date						
Source Map Scale Number			Inch(es)	=	Feet	
			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
021A	1	R	F	1/1/1955	02/09/2021	2,935,800	Heavy Reformate			
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# 51-33520

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# 51-33820 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 (5)	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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Facility Name Phlla 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 #
	021A					
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	2/9/2021 Date
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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 E. Adams Avenue				
Address Last Line - City		State	ZIP+4	Country
Philadelphia		PA	19124	USA
Contact Title		Phone		Ext.
President				
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 herein 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
021 A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	7/2/11

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#



June 21, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	056A	PB 882	P-600	5/20/2021
Point Breeze Refinery	51-33620	002A	PB 33	P-507	5/21/2021
Point Breeze Refinery	51-33620	029A	PB 84	P-519	5/26/2021
Point Breeze Refinery	51-33620	038A	PB 178	P-541	5/27/2021
Point Breeze Refinery	51-33620	039A	PB 179	P-542	6/04/2021
Point Breeze Refinery	51-33620	028A	PB 43	P-516	6/07/2021

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 # Phila Ref Point Breeze Facility Name	DEP USE ONLY
	Client ID#
	Site ID#
	Account #
	Auth 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 (2530-PM-BECB0614a) 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 W. Paesyunk Ave				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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)						8-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

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# 51-33820

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) (ASTs 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Gravity fed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input checked="" 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 #
	056A	002A	029A	038A	039A	028A
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 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	8/18/2021
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		
250 E. Adams Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
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
056A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/15/2021
002A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
029A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
038A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
039A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
028A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021

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#



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 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 W. Passyunk Ave					
Address Last Line – City	State	ZIP+4	Country		
Philadelphia	PA	19141-5299	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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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	_____
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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"/>

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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 #
	022A					
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	4/21/2021
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
250 E. Adams Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title	Phone	Ext.
President		

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
022 A	Kristian Satterthwaite		5081	AFR	1557		

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#



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 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 W. Passyunk Ave				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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. §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
023A	T	R	F	1/1/1959	03/31/2021	3,410,400	Gasoline			
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# 51-33620

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"/>

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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 #
	023A					
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	4/21/2021
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		
250 E. Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
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
023 A	Kristian Satterthwaite		5081	AFR	1557		

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#



September 28, 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	087A	PB 36	P-510	9/7/2021

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.

	DEP USE ONLY
51-33620 Facility ID #	Client ID#
Phila Ref Point Breeze Facility Name	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 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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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 #
	087A					
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	<u>9/23/2021</u>
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
087A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	9/27/21

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 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#



July 6, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	024A	PB 37	--	6/25/2021
Point Breeze Refinery	51-33620	007A	PB 190	--	7/02/2021
Point Breeze Refinery	51-33620	075A	PB 21T 3109	--	7/02/2021

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

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

David J. Piercey
Vice President
PADEP Inspector #1620

DJP: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 #	Client ID#
Phila Ref Point Breeze Facility Name	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 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 W. Passyunk Ave					
Address Last Line – City		State	ZIP+4	Country	
Philadelphia		PA	19141-5299	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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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 #
	024A	007A	075A			
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 type="checkbox"/>	<input 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 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	07/02/2021
Owner Signature	Title	Date

Information & Invoices should be sent to:

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

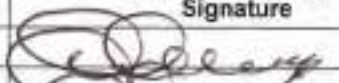
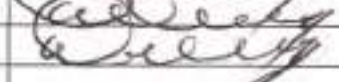

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Northstar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
250 E. Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
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
024A	David Piercey	API 650	1620	AFR	1557		7-6-21
007A	David Piercey	API 650	1620	AFR	1557		7-6-21
0075A	David Piercey	UL 142	1620	AMR	1557		7-6-21

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 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#



September 28, 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	003A	PB 38	P-512	9/3/2021

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 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.

		DEP USE ONLY	
51-33620		Client ID#	
Facility ID #		Site ID#	
Phila Ref Point Breeze		Account #	
Facility Name		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# 298341	Client Type/Code	Fee Kind (check one if applicable)			
		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt	
Organization Name or Registered Fictitious Name Philadelphia Energy Solutions Refining and Marketing, LLC		Employer ID# (EIN)		Dun & Bradstreet ID#	
Individual Last Name Bowman	First Name Gary	MI P.	Suffix Sr.	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1 3144 West Passyunk Avenue		Mailing Address Line 2			
Address Last Line – City Philadelphia	State PA	ZIP+4 19145	Country USA		
Client Contact Last Name Bowman	First Name Gary	MI P.	Suffix Sr.		
Client Contact Title President		Phone 610-636-4574	Ext		
E-mail Address Gbowman@northstar.com				FAX	

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		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 #
	003A					
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	9/23/2021
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
003A	Kristian Satterthwaite	API 650	5081	AFR	1557	<i>Kristian Satterthwaite</i>	9/27/21

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 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#



June 21, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	027A	PB 42	P-515	6/09/2021
Point Breeze Refinery	51-33620	004A	PB 83	P-518	6/10/2021
Point Breeze Refinery	51-33620	085A	PB 1224	N/A	6/11/2021
Point Breeze Refinery	51-33620	025A	PB 39	P-513	6/16/2021

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.

	DEP USE ONLY
51-33620	Client ID#
Facility ID #	Site ID#
Phila Ref Point Breeze	Account #
Facility Name	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 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 W. Passyunk Ave				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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		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"/>

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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 #
	027A	004A	085A	025A		
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input checked="" 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	6/18/2021
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		
250 E. Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
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
027A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
004A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
085A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021
025A	Kristian Satterthwaite		5081	AFR	1557	<i>Kristian Satterthwaite</i>	6/18/2021

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#



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 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 W. Passyunk Ave					
Address Last Line – City		State	ZIP+4	Country	
Philadelphia		PA	19141-5299	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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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	_____
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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 #
	026A					
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	4/20/2021
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
250 E. Adams Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title	Phone	Ext.
President		

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
026 A	Kristian Satterthwaite		5081	AFR	1557		

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#



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	Client ID#
Facility ID #	Site ID#
Phila Ref Point Breeze	Account #
Facility Name	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 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 W. Passyunk Ave				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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. §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
030A	T	R	F	1/1/1955	04/15/2021	1,806,000	Distillate			
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# 51-33620

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

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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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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 #
	030A					
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 _____ 4/22/2021 _____
 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
250 E. Adams Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title	Phone	Ext.
President		

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
030 A	Kristian Satterthwaite		5081	AFR	1557		

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#



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 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 W. Passyunk Ave					
Address Last Line – City	State	ZIP+4	Country		
Philadelphia	PA	19141-5299	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. §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
032A	T	R	F	1/1/1971	03/11/2021	6,447,000	Gasoline Components			
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# 51-33620

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 #
	032A					
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	3/11/2021
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
250 E. Adams Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title	Phone	Ext.
President		

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
032 A	Kristian Satterthwaite		5081	AFR	1557		

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#



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 W. Passyunk Ave				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19141-5299	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. §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
033A	T	R	F	1/1/1971	03/18/2021	6,447,000	Heavy Reformate			
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# 51-33620

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 #
	033A					
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"/>

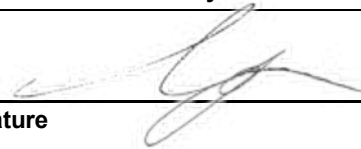
IX. OWNER CERTIFICATION

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	3/18/2021
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		
250 E. Adams Avenue				
Address Last Line – City	State	ZIP+4	Country	
Philadelphia	PA	19124	USA	
Contact Title	Phone		Ext.	
President				
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
033 A	Kristian Satterthwaite		5081	AFR	1557		

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#



September 28, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	041A	PB 204	P-547	9/1/2021
Point Breeze Refinery	51-33620	016A	PB 78	N/A	9/1/2021

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.

	DEP USE ONLY
51-33620 Facility ID #	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 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		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
041A	T	R	F	01/01/1931	09/01/2021	340,200		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.

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	041A					
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	9/23/2021
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
041A	Kristian Satterthwaite	API 650	5081	AFR	1557	<i>Kristian Satterthwaite</i>	9/27/21

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 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#



September 30, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	018A	PB 14V 11	N/A	8/18/2021
Point Breeze Refinery	51-33620	061A	PB 14V 403	N/A	8/18/2021
Point Breeze Refinery	51-33620	078A	PB 3126	N/A	8/18/2021

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 # 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 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

<input type="checkbox"/> Same as Tank Owner Identified in Section II. <input type="checkbox"/> 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 #
	018A	061A	078A			
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 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 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	9/29/2021
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
018A	Kristian Satterthwaite	API 650	5081	AMR	1557	<i>Kristian Satterthwaite</i>	9/30/21
061A	Kristian Satterthwaite	API 650	5081	AMR	1557	<i>Kristian Satterthwaite</i>	9/30/21
078A	Kristian Satterthwaite	API 650	5081	AMR	1557	<i>Kristian Satterthwaite</i>	9/30/21

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 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#



August 26, 2021

Pennsylvania Department of Environmental Protection
 Southeast Regional Office
 Division of Storage Tanks
 2 East Main Street
 Norristown, Pennsylvania 19401
 Attn: Mr. Ron Estel
restel@pa.gov

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

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Forms to change the status to permanently closed for thirteen (13) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	017A	PB 12V 11	N/A	7/13/2021
Point Breeze Refinery	51-33620	062A	PB 9V 14	N/A	7/13/2021
Point Breeze Refinery	51-33620	083A	PB 12V 12	N/A	7/13/2021
Point Breeze Refinery	51-33620	084A	PB 8Z 102	N/A	7/13/2021
Point Breeze Refinery	51-33620	082A	PB 16V 122	N/A	7/14/2021
Point Breeze Refinery	51-33620	060A	PB 9V 2	N/A	7/14/2021
Point Breeze Refinery	51-33620	079A	PB 11V 9	N/A	7/17/2021
Point Breeze Refinery	51-33620	089A	PB 89	N/A	7/21/2021
Point Breeze Refinery	51-33620	071A	PB 7316	N/A	7/23/2021
Point Breeze Refinery	51-33620	014A	PB 3V 37	N/A	7/23/2021
Point Breeze Refinery	51-33620	081A	PB 18T 1011	N/A	7/27/2021
Point Breeze Refinery	51-33620	067A	PB 1V 120	N/A	7/30/2021
Point Breeze Refinery	51-33620	068A	PB 2V 20	N/A	7/30/2021

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.



Jerry F. Naples, Jr.
Principal

Enclosures: JD2 letter
Storage Tank Registration Forms (Point Breeze)

cc:

Robert Armstrong (Northstar)
Gary Bowman (Northstar)
Kassahun Sellassie (AMS)
Charles Barksdale (Hilco)

Kris Satterthwaite (JD2 Environmental)
Thomas Barsley (AMS)
Edward Wiener (AMS)
Mike Leonardo (Hilco)





August 26, 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 tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	017A	PB 12V 11	N/A	7/13/2021
Point Breeze Refinery	51-33620	062A	PB 9V 14	N/A	7/13/2021
Point Breeze Refinery	51-33620	083A	PB 12V 12	N/A	7/13/2021
Point Breeze Refinery	51-33620	084A	PB 8Z 102	N/A	7/13/2021
Point Breeze Refinery	51-33620	082A	PB 16V 122	N/A	7/14/2021
Point Breeze Refinery	51-33620	060A	PB 9V 2	N/A	7/14/2021
Point Breeze Refinery	51-33620	079A	PB 11V 9	N/A	7/17/2021
Point Breeze Refinery	51-33620	089A	PB 89	N/A	7/21/2021
Point Breeze Refinery	51-33620	071A	PB 7316	N/A	7/23/2021
Point Breeze Refinery	51-33620	014A	PB 3V 37	N/A	7/23/2021
Point Breeze Refinery	51-33620	081A	PB 18T 1011	N/A	7/27/2021
Point Breeze Refinery	51-33620	067A	PB 1V 120	N/A	7/30/2021
Point Breeze Refinery	51-33620	068A	PB 2V 20	N/A	7/30/2021

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 # 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 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	810-636-4574			
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. §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 VI 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 Red 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 Phlla 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 of 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 PhWa 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 #	Tank #	Tank #
	017A	062A	083A	084A	082A	060A	079A	089A
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"/>	<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"/>	<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"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Facility ID# 51-33620

Facility Name Philadelphia 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 #	Tank #
	071A	D14A	081A	067A	068A		
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"/>	<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"/>	<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"/>	<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 obtained.

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

8/26/2021
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		610-636-4574		
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 1980 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
017A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
062A	Kristian Satterthwaite	UNK	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
083A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
084A	Kristian Satterthwaite	UNK	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
082A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
060A	Kristian Satterthwaite	UNK	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
078A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21

(TANKS CONTINUED NEXT PAGE)

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 1980, 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#

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
089A	Kristian Satterthwaite	ASTM 1998D	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
071A	Kristian Satterthwaite	UNK	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
014A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
081A	Kristian Satterthwaite	UL 142	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
067A	Kristian Satterthwaite	UNK	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21
068A	Kristian Satterthwaite	ASTM 1998D	5081	AMR	1557	<i>Kristian Satterthwaite</i>	8/26/21

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 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

Field Notes



Location PES ART CLOSURE Date 6/7Project / Client HILCO

0730	TYLER (SHORT) + TPI ON-SITE
0745	GEORGE (TPI) STARTS SAFETY MEETING
0900	GEORGE COMPLETES SAFETY MEETING
0905	MOVE TO PB-26
0915	COMPLETE PB26-01
0936	COMPLETE PB26-02
0947	BEGIN SCREENING PB26-03
0958	COMPLETE PB26-04
1010	BEGIN DRILLING PB26-05
1023	BEGIN DRILLING PB26-06
1037	COMPLETE DRILLING PB26-07
1053	COMPLETE DRILLING PB26-08
1105	COMPLETE DRILLING PB26-09
1125	COMPLETE " PB-26-10
1141	COMPLETE DRILLING PB-26-11
1156	COMPLETE DRILLING PB-26-12
1200	LOUNCH
1300	DRILL PB-26-13
1315	COMPLETE PB-26-14
1320	DRILL PB-26-15
1330	" PB-26-16
1340	TPI MOVES TO PB-27
1430	COMPLETE PB-27-01
1530	MEET ALPHA

Location PES AST CLOSURE Date 6/7 141
 Project / Client HILCO

TIME	SAMPLE	DESCRIPTION	PID	DEPTH
0935	PB26-01	BROWN CLAY w/ SILT	5382	3.5-4.0
0945	PB26-02	BROWN FILL SAND	787.3	3.0-3.5
0955	PB26-03	GRAY SILT w/ FINE SAND	3790	4.5-5.0
1010	PB26-04	GRAY SILT w/ CLAY	5292	4.0-4.5
1020	PB26-05	BROWN SILT	1657	4.5-5.0
1035	PB26-06	GRAY SILT	5029	4.5-5.0
1045	PB26-07	BROWN SILT	2154	4.5-5.0
1100	PB26-08	GRAY FINE SAND	6098	4.5-5.0
1115	PB26-09	GRAY SILT, SOME CLAY	1137	3.0-3.5
1130	PB26-10	BROWN CLAY	6790	2.5-3.0
1150	PB26-11	BROWN CLAY w/ SILT	3676	3.5-4.0
1200	PB26-12	GRAY SILT	5580	4.5-5.0
1310	PB26-13	GRAY SILT	379.7	4.5-5.0
1320	PB26-14	FILL MATERIAL	114.6	4-4.5
1330	PB26-15	BROWN SILT	1270	4-4.5
1340	PB26-16	BROWN SILT	42.9	3.5-4.0
1400	PB27- 17 01	BROWN/GRAY SILT*	15000L	2.5-3.0
1445	PB27-02	DARK BROWN SAND w/ SILT	4590	3.0-3.5

* STRONG SCENT OF GASOLINE

Location PES Art Closure Date 6/8Project / Client HILCO

0700	TYLER SPOBT + TPL OW-SITE	
0715	DRILL PB27-03	
0736	DRILL PB27-04 (DUP- ³ 4) @	0750
0749	DRILL PB27-05	
0803	DRILL PB27-06	
0812	DRILL PB27-07	
0835	DRILL PB27-08	
0846	DRILL PB27-09	
0900	DRILL PB27-10	
0925	DRILL 27-12	
0940	DRILL 27-13	
0950	DRILL 27-11	
1005	DRILL 27-14	
1020	DRILL 27-15	
1045	DRILL 27-16	
1055	LUNCH	
1140	DRILL 27-17	
1209	DRILL 28-06	
1220	DRILL 28-19	
1245	DRILL 28-02	
1300	DRILL 29-03	
1330	DRILL 2801	
1340	DRILL 2804	
1355	THUNDER STORM; STOP WORK	

Location PES AST CLOSURE Date 6/8 143
 Project / Client HILCO

TIME	SAMPLE	DESCRIPTION	PID	DEPTH
0730	PB27-03	BROWN SILT w/ SAND*	15000L	3.5-4.0
0745	PB27-04	BROWN SILT w/ SAND	3158	3.5-4.0
0755	PB27-05	BROWN SILT w/ CLAY ⁵	15000L	3.5-4.0
0810	PB27-06	BROWN SILT w/ CLAY*	13825	4.0-4.5
0815	PB27-07	DARK BROWN FINE SAND	5436	3.0-3.5
0840	PB27-08	BROWN SILT w/ SAND	739.2	4.0-4.5
0855	PB27-09	BROWN SILT	1083	4.0-4.5
0905	PB27-10	BROWN SILT	5291	3.0-4.0
0935	PB27-12	BROWN SILT	283.7	4.5-5.0
0950	PB27-13	FILL MATERIAL	10.4	3.0-3.5
0955	PB27-11	BROWN SILT w/ SAND	1886	4.5-5.0
1025	PB27-14	BROWN SAND w/ SILT	1124	3.0-3.5
1040	PB27-15	BROWN SILT	87.8	3.0-3.5
1050	PB27-16	BROWN SILT	114.5	4.0-4.5
1150	PB27-17	BROWN SILT	5486	3.0-3.5
1220	PB28-06	BROWN SILT	751.2	4.0-4.5
1230	PB28-19	ASH FILL w/ some SILT	3974	3.0-3.5
1255	PB28-02	BROWN SILT	68.7	3.0-3.5
1310	PB28-03	GRAY SILT	184.2	4.0-4.5
1335	PB28-01	BROWN/GRAY SILT	9.2	3.0-3.5
1350	PB28-04	BROWN SILT	25.6	3.0-3.5
* STRONG SCENT OF GASOLINE				

Rite

PES AST CLOSURE

Date 6/9 89

Location _____
 Project / Client HILCO

0700	TS, TPI ON-SITE	
0730	TPI ATTEMPTS TO DRILL PB-28-14	
0750	DRILL PB28-06	
0800	DRILL PB28-15	
0820	DRILL PB28-12	
0840	DRILL PB28-11	
0855	DRILL PB28-07	
0910	DRILL PB28-20	
0920	DRILL PB28-21	
0950	DRILL PB28-17	
1010	DRILL PB28-07	
1035	DRILL PB28-18	
1045	DRILL PB28-22	
1105	DRILL PB29-01	
1120	DRILL PB29-02	
1140	DRILL PB29-03	
1145	DRILL PB29-04	FB-210609-1 @ 1200
1200	DRILL PB29-05	
1200	DRILL PB29-06	
1300	DRILL PB29-07	
1310	DRILL PB29-08	
1330	DRILL PB29-09	
1340	DRILL PB29-10	FB-210609-2 @ 1400

Location PES - AST CLOSURE Date 6/9 145

 Project / Client HILEO

TIME	SAMPLE	DESCRIPTION	PID	DEPTH
0800	PB28-16	BROWN Clay w/ SILT	789.2	3.0-3.5
0815	PB28-15	BROWN SILT	1248	3.0-3.5
0830	PB28-12	BROWN SILT	15.8	3.0-3.5
0855	PB28-11	BROWN SILT	433.1	3.0-3.5
0905	PB28-07	BROWN SILT *	15000L	4.0-4.5
0925	PB28-20	Brown / GRAY SILT	2357	4.5-5.0
0940	PB28-21	BROWN SILT	492.7	3.5-4.0
1020	PB28-17	BROWN SILT	170.7	2.0-2.5
1040	PB28-18	BROWN SILT	111.9	1.5-2.0
1055	PB28-22	BROWN SAND / GRAVEL FILL	1936	4.5-5.0
1110	PB29-01	BROWN SILT	5816	3.0-3.5
1125	PB29-02	BROWN SILT *	14,783	4.5-5.0
1145	PB29-03	BROWN / GRAY SILT *	13,091	4.5-5.0
1150	PB29-04	BROWN / GRAY SILT	3107	4.5-5.0
1230	PB29-05	BLACK / GRAY SILT *	15000L	4.5-5.0
1300	PB29-06	BROWN SILT	15000L	3.0-3.5
1315	PB29-07	BROWN SILT	7419	3.0-3.5
1320	PB29-08	FILL MATERIAL	5029	1.0-1.5
1335	PB29-09	BROWN / GRAY SILT *	15,000L	15,000 4.5-5.0
1355	PB29-10	FILL MATERIAL / STONE	15,000L	1.0-1.5

* STRONG SCENT OF GASOLINE

Location PES AST Closure

Date 8/10

Project / Client ITILCO

0700	TYLER SHORT +	TPI	AM-5.55
0730	DRILL	PB29-11	
0740	DRILL	PB29-12	
0800	DRILL	PB29-13	
0810	DRILL	PB29-16	
0825	DRILL	PB29-21	
0850	DRILL	PB29-20	
0900	DRILL	PB29-22	
0915	DRILL	PB29-23	
0946	DRILL	PB29-19	
1020	DRILL	PB29-25	
1030	DRILL	PB29-26	
1055	DRILL	PB29-27	
1120	DRILL	PB29-29	
1230	DRILL	PB29-14	
1235	DRILL	PB29-15	
1300	DRILL	PB29-18	
1315	DRILL	PB29-17	
1330	MOVE TO	TANK 33	
1335	DRILL	PB33-01	
1340	DRILL	PB33-02	
1350	DRILL	PB33-03	
1405	DRILL	PB33-04	

1229 SAMPLE TABLES

TIME	SAMPLE ID	DESC	PID	DEPTH
1140	PB29-29	BROWN SILT w/ FINE SAND	2773	4.5-5.0
1200	PB-210611-1	—	—	—
1235	PB29-14	BROWN SILT w/ SAND	263.1	REF @ 9'
1255	PB29-15	BROWN SAND w/ GRAY	53.2	3-3.5'
1305	PB29-18	FINE SAND	211.8	4-4.5
1320	PB29-17	BROWN/GRAY SILT	439.7	4.5-5.0
1340	PB33-01	BROWN/GRAY SILT	4793	4.5-5.0
1350	PB33-02	BROWN/GRAY SILT	2731	3-3.5
1405	PB33-03	BROWN SILT w/ GRAY CLAY	842.7	2-2.5
1410	PB33-04	DARK BROWN SILT	1959	1-1.5
740	PB29-11	SANDY FILL w/ STONE	887.1	10-15
0800	PB29-12	BROWN SILT w/ SAND	810.6	3.0-3.5
0810	PB29-13	BROWN GRAY SILT	436.2	3.0-3.8
0815	PB29-16	BROWN GRAY SILT	4279	3.5-4.0
0840	PB29-21	BROWN/GRAY SILT*	150002	4.0-4.5
0855	PB29-20	SANDY FILL w/ STONE	128.6	1.5-2.0
0910	PB29-22	GRAY SILT w/ SAND	4312	4.5-5.0
0920	PB29-23	GRAY SILT w/ SAND	5339	3.5-4.0
1005	PB29-19	GRAY/BROWN SILT	3001	4.0-4.5
1035	PB29-25	BLACK FINE SAND	1708	4.5-5.0
1045	PB29-26	GRAY/BROWN SILT	1730	4.5-5.0
1105	PB29-27	GRAY/BROWN SILT	3062	4.0-4.8

*STRONG SCENT OF GASOLINE Rite in the Rain

0700	TS +	TP1 ON-516
0715	DRILL	PB33-05
0735	DRILL	PB33-06
0740	DRILL	PB33-07
0750	DRILL	PB33-08
0810	DRILL	PB33-09
0830	DRILL	PB33-10
0835	DRILL	PB33-11
0850	DRILL	PB33-12
0900	DRILL	PB33-13
0915	DRILL	PB33-14
0935	DRILL	PB33-15
0940		PB33-16
0950		PB33-17
1000	DRILL	PB33-18
1100 15	DRILL	PB33-19
1130	DRILL	PB33-20
1145	DRILL	PB33-21
1155	DRILL	PB33-22
1205	DRILL	PB33-23

Time	SAMPLE	DESC	PID	DEPTH
0730	PB33-05	GRAY CLAY	15000	2-2.5
0735	DUP-6	"	"	"
0740	PB33-06	GRAY SILT	43.2	1-1.5
0750	PB33-07	BROWN FINE SAND	647.3	3-3.5
0810	PB33-08	GRAY SILT	7,009	3-3.5
0820	PB33-09	BROWN/GRAY SILT	8327	4-4.5
0835	PB33-10	BROWN SILT w/ SAND	50.8	3-3.5
0845	PB33-11	BROWN/BROWN SILT	2229	4-4.5
0900	PB33-12	GRAY/BROWN SILT	10071	2.5-3.0
0910	PB33-13	GRAY/BROWN SILT	1072	0.5-1
0920	PB33-14	GRAY/BROWN SILT	1261	3-3.5
0930	PB33-15	GRAY/BROWN SILT	781.2	4-4.5
0945	PB33-16	GRAY/BROWN SILT	6631	3-3.5
1000	PB33-17	GRAY SILT	645.7	1.5-2
1010	PB33-18	BROWN/BROWN SILT	8754	3.5-4.0
1120	PB33-19	FILL MATERIAL	80A	1.5-2.0
1140	PB33-20	FILL MATERIAL	90.1	3.0-3.5
1150	PB33-21	FILL MATERIAL	335.2	4.5-5
1205	PB33-22	FILL MATERIAL	1236	2.5-3.0
1220	PB33-23	GRAY SILT	816.8	4.5-5.0
1230	PB-210611-1	-		
1300	PB-210611-2	-		

Ritterman

0730	TYLER SHURT, TPI (COLLIN) ON-SITE
0822	KID DELIVERY DELAYED
1000	DRILL PB34-12
1010	DRILL PB34-1A
1040	DRILL PB35-05
1100	DRILL PB35-03
1105	DRILL PB35-08
1115	DRILL PB35-04
1125	DRILL PB35-02
1135	DRILL PB35-01
1145	DRILL PB35-07
1210	DRILL PB35-15
1250	DRILL PB35-12
1305	DRILL PB34-06
1310	DRILL PB34-05
1325	DRILL PB34-03
1340	DRILL PB34-07
1355	DRILL PB34-11
1400	DRILL PB34-01
1400	DRILL PB34-02
1415	DRILL PB40-05
1425	DRILL PB40-06
1500	COMPLETE DRILLING, TPI LEAVES SITE

Location

Project / Client

HILCO

SAMPLE TABLE

TIME	SAMPLE	DESC	PID	DEPTH
1035	PB3A-12	FILL MATERIAL w/ SILT	647.1	2.0-2.5
1040	PB3A-14	Brown FILL SAND	151.7	2.0-2.5
1045	PB35-05	BROWN SILT	546.8	3.5-4
1100	PB35-03	BROWN SILT - / SAND	63.1	3.0-3.5
1105	PB35-08	GRAY SILT	632.9	3.5-4
1120	PB35-04	GRAY/BROWN SILT	144.9	4-4.5
1130	PB35-02	GRAY/BROWN SILT	654.1	4.5-5.0
1140	PB35-01	COARSE SAND w/ STAIN	630.0	1.5-2
1150	PB35-07	BROWN SILT	445.7	3.5-4.0
1250	PB35-15	GRAY SILT	586.7	3.0-3.5
1300	PB35-12	Brown GRAY SILT	283.2	4-4.5
1310	PB34-06	GRAY SILT	124.2	3-3.5
1320	PB34-05	GRAY SILT	937.8	4-4.5
1330	PB34-03	Brown/GRAY SILT	245.7	2-2.5
1340	PB34-07	Brown SILT	362.1	3-3.5
1350	PB34-11	Brown/GRAY SILT w/ SAND	424.8	4-4.5
1400	PB34-01	HISTORIC FILL	695.7	3.5-4.0
1410	PB34-02	GRAY SILT w/ COARSE SAND	899.1	4-4.5
1425	PB40-05	Brown/GRAY CLAY/SILT	37.1	3-3.5
1435	PB40-06	GRAY/BROWN SILT	62.7	3-3.5
1445	DUP-07	"	"	"

0715	TRUCK SHORT + TPI (COLLUS) ON-SITE	
0800	DRILL PB40-01	
0810	DRILL PB40-02	
0820	DRILL PB40-03	
0840	DRILL PB40-04	
0850	DRILL PB40-07	
0910	DRILL PB40-08	
0920	DRILL PB40-09	
0935	DRILL PB40-10	
0945	DRILL PB40-11	
0955	DRILL PB40-12	
1010	DRILL PB40-13	
1020	DRILL PB40-14	
1030	DRILL PB40-14 15	
1040	DRILL PB40-16	
1150	MOVG TO TANK 128	
1205	DRILL PB128-01	
1210	DRILL PB129-01	
1220	DRILL PB128-02	
1225	DRILL PB128-03	
1235	DRILL PB129-04	
1250	DRILL PB128-05	
1300	DRILLER HAS MECHANICAL KEYS w/ TRUCK	

Location PES Ast Closure Date 6/22 105
 Project / Client HILCO

TIME	SAMPLE	DESC	PID	DEPTH
0800	PB40-01	BLACK SILT*	78.1	2.5-3
0820	PB40-02	BLACK SILT	498.2	4.5-5.0
830	PB40-03	FILL MATERIAL	2426	3-3.5
850	PB40-04	FILL MATERIAL	153.9	3.5-4.0
0900	PB40-07	Brown/GRAY SILT	83.2	3.5-4.0
0915	PB40-08	Brown/GRAY SILT	72.1	4-4.5
0930	PB40-09	Brown FINE SAND	21.3	3-3.5
0945	PB40-10	Brown/GRAY SILT	733.5	4-4.5
0955	PB40-11	Brown/GRAY SILT	646.7	3-3.5
1005	PB40-12	Brown SILT w/ GRAVEL	20.2	3-3.5
1015	PB40-13	Brown SILT	293.1	4-4.5
1030	PB40-14	Brown/GRAY SILT	364.1	3-3.5
1040	PB40-15	Brown/GRAY SILT	239.1	4-4.5
1050	PB40-16	Brown/GRAY SILT	742.1	4-4.5
1210	PB128-02	BROWN FINE SAND	292.1	3-3.5
1215	PB129-01	Brown FINE SAND	280.1	3-3.5
1225	PB129-02	HISTORIC FILL	79.1	2.5-3.0
1235	PB128-03	BLACK COARSE SAND	840.1	3-3.5
1245	PB128-04	BLACK COARSE SAND	29.1	3-3.5
1300	PB128-05	Brown SILT w/ SAND	151.3	4-4.5
DUP-8	"	@ 1310		

StenoNotes From 6/23

Rite in the Rain

Location PES AST Closest

Date 6/23

Project / Client Hilco

0720	TS +	TP1	GM-5178
0750	DRILL		PB128-08
0805	DRILL		PB128-13
0815	DRILL		PB128-16
0850	DRILL		PB129-02
0905	DRILL		PB129-03
0915	DRILL		PB129-04
0920	DRILL		PB129-05
0925	DRILL		PB129-06
0950	DRILL		PB129-14
1000	DRILL		PB129-15
1015	DRILL		PB129-17
1300	DRILL		MONTZ ALPHA - PB-84 01
1315	DRILL		PB84-02
1325	DRILL		PB84-03
1335	DRILL		PB84-04
1420	DRILL		PB84-05
1430	DRILL		PB84-06
1440	DRILL		PB84-07
1450	DRILL		PB84-08
1460	TS	PERFORM	QA/QC
1530	TS	MONTZ	ALPHA

Location PES
Project / Client

TIME	SAMPLE
0750	PB128-
0810	PB128
0820	PB128
0830	PB128
0840	PB128
0850	PB128
0905	PB129
0915	PB129
0925	PB129
0930	PB129
0940	PB129
1000	PB129
1010	PB129
1025	PB129
1300	PB84
1315	PB84
1330	PB84
1345	PB84
1425	PB84
1440	PB84
1455	PB84
1500	PB84

SAMPLE RECOLLECTED

28-08
 28-13
 -16
 7-02
 -03
 04
 5
 6
 A
 15
 17
 PB-84 01
 02
 03
 A

P&S Asst Closure Date 6/23 107
 Location HILCO
 Project / Client

SAMPLE RECOLLECTED

TIME	SAMPLE	DESC	PID	DEPTH
0750	PB128-08	BLACK COARSE SAND	12.5	45-5.0
0810	PB128-13	FILL MATERIAL	23.8	3.0-3.5
0830	PB128-16	FILL MATERIAL	16.7	3.0-3.5
0840	PB129-02	FILL MATERIAL	50.7	3.0-3.5
0845	PB129-03	BLACK FINE SAND	150.3	4.5-5.0
0845	PB129-04	FILL MATERIAL	65.2	4-4.5
0930	PB129-05	FILL MATERIAL	439.1	3.0-3.5
0940	PB129-06	FILL MATERIAL	15,000*	4.5-5
1000	PB129-14	FILL MATERIAL	380.1	3.0-3.5
1010	PB129-15	FILL MATERIAL	1.7	3.0-3.5
1025	PB129-17	FILL MATERIAL	28.3	3.0-3.5
1310	PB84-01	BROWN/GRAY SILT	221.7	2.5-3.0
1325	PB84-02	BROWN/GRAY SILT	383.8	1.5-2.0
1330	PB84-03	BROWN/GRAY SILT	363.7	4-4.5
1345	PB84-04	GRAY SILT	1002	3-3.5
1425	PB84-05	GRAY/BROWN SILT	689.1	4-4.5
1440	PB84-06	GRAY/BROWN SILT	194.6	3.5-4.0
1445	PB84-07	GRAY/BROWN SILT	121.1	4.5-5.0
1455	PB84-08	GRAY BROWN SILT	324.1	3-3.5
1050	PB129-01	BROWN FINE SAND	332.9	4-4.5

* STRONG PETROLEUM SCENT

0710	SMTP1 ON-SITE
0730	DRILL PB84-09
0810	DRILL PB84-10
0820	DRILL PB84-18
0830	DRILL PB84-16
0840	DRILL PB84-19
0850	DRILL PB84-15
0855	DRILL PB84-12
0920	RELEASE TO PB42
0950	DRILL PB42-01
1005	DRILL PB42-02
1020	DRILL PB42-03
1025	DRILL PB42-04
1030	DRILL PB42-05
1040	DRILL PB42-06
1050	DRILL PB42-07
1100	DRILL PB42-08
1220	DRILL PB42-09
1230	DRILL PB42-10
1240	DRILL PB42-11
1250	DRILL PB42-12
1310	DRILL PB42-13
1320	DRILL PB42-14
1330	DRILL PB42-15
1345	DRILL PB42-16

Location

PES Closure

Date

6/24

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Project / Client

HILCO

TIME	SAMPLE	DESC	PID	DEPTH
0800	PB84-09	Brown/GRAY SILT	765.1	0-0.5
0805	DUP-9	"		7
0820	PB84-10	FINE Brown SAND	10.2	1.5-2.0
0825	PB84-18	Brown/GRAY SILT	232.7	2.5-3.0
0835	PB84-16	BLACK SAND/Gravel FILL	496.2	1-1.5
0850	PB84-19	Brown/GRAY SILT	172.1	3-3.5
0900	PB84-5	Brown/GRAY SILT	144.6	2.5-2.0
0905	PB84-10	Brown/GRAY SILT	700.1	3-3.5
1000	PB42-01	Brown/GRAY SILT	302.7	2.5-3
1010	PB42-02	Brown/GRAY SILT	283.4	3-3.5
1025	PB42-03	Brown/GRAY SILT	586.7	3-3.5
1035	PB42-04	FILL MATERIAL	287.3	1.5-2.0
1040	PB42-05	GRAY Brown SILT	586.7	3-3.5
1050	PB42-06	BLACK FILL MATERIAL	603.2	1-1.5
1100	PB42-07	FILL MATERIAL	572.3	1-1.5
1110	PB42-08	Brown SILT	1285	2.5-3
1230	PB42-09	GRAY/Brown SILT	1620	4-4.5
1240	PB42-10	GRAY/Brown SILT	1406	3.5-4.0
1245	PB42-11	BLACK FILL MATERIAL	579.1	1.0-1.5
1300	PB42-12	Brown SILT	20.1	3.0-3.5
1315	PB42-13	Brown/GRAY SILT	78.6	3.0-3.5
1325	PB42-14	Brown/GRAY SILT	102.7	3.0-3.5
1330	DUP-10	"	"	"
1340	PB42-15	Brown SILT	212.9	3-3.5

ASS - RES

Date 6/21

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Location

HILCO

Project / Client

FR	SAMPLE	DESC	PID	DEPTH
1400	PB42-16	FILL MATERIAL	396.9	4.5-5.0

Location

PES ART CLOSURE

Date

6/25

Project / Client

HILCO

0715	TYLER + ALBERT (ZANSON) ON-SITE
0810	DRILL PB43-04
0845	DRILL PB43-09
0900	DRILL PB43-12
0910	DRILL PB43-13
0920	DRILL PB43-14
0940	DRILL PB83-08
1000	DRILL PB83-09
1010	DRILL PB83-10
1025	DRILL PB83-01
1035	DRILL PB83-02
1045	DRILL PB83-03
1100	DRILL PB93-07
1110	DRILL PB83-12
1125	DRILL PB43-15
1135	DRILL PB43-16
1300	QA/QC SAMPLES
1530	MEET w/ALPHA. ALBERT LEAVES SITE

Location

PES

Project / Client

SAMPLE

0830	PB43-04
0855	PB43-09
0905	PB43-12
0920	PB43-13
0935	PB43-14
0945	PB83-08
1005	PB83-09
1020	PB83-10
1035	PB83-01
1050	PB83-02
1100	PB93-07
1110	PB83-12
1120	PB43-15
1140	PB43-16
1150	

SURVE Date 6/25
 (Panson) on-site

Location P.E.S. AST CLOSURE Date 6/25 113
 Project / Client HILLO

TIME	SAMPLE	DESC	PID	DEPTH
0830	PB43-04	GRAY SILT	356.7	3.5-4.0
0855	PB43-09	GRAY/BROWN SILT	6.7	3.0-3.5
0905	PB43-12	GRAY/BROWN SILT	2832	3.0-3.5
0920	PB43-13	GRAY/BROWN SILT	483.1	2.0-2.5
0935	PB43-14	GRAY SILT	37.1	3-3.5
0945	PB83-08	GRAY SILT	80.7	2-2.5
1005	PB83-09	BROWN SILT	8.3	3.0-3.5
1020	PB83-10	FILL MATERIAL	11.7	1.5-2.0
1035	PB83-01	GRAY/BROWN SILT	30.1	4-4.5
1050	PB83-02	GRAY/BROWN SILT	106.7	3-3.5
1100	PB83-03	GRAY/BROWN SILT	367.2	3-3.5
1110	PB83-07	FILL MATERIAL	212.4	3-3.5
1120	PB83-10	FILL MATERIAL	8.3	3-3.5
1140	PB83-15	FILL MATERIAL	37.1	1.5-2.0
1150	PB83-16	FILL MATERIAL	26.7	3-3.5

ERT LEAVES

Rite in the Rain

Location PES - AST CLOSURE Date 7/16/21
 Project / Client HILCO

0745 TYLER SHIRT, SCOTT ~~HEAT~~, JOHN on-site

0800 H + S MEETING

0830 BELIN TANK 85

0835 DRILL TK PB85-01

0845 DRILL PB 85-02

0905 DRILL PB 85-06

0910 DRILL PB 85-07

0930 DRILL PB 85-08

0950 DRILL PB 85-03

1005 DRILL PB85-04

1015 DRILL PB85-05

1030 DRILL PB85-10

1050 DRILL PB85-16

1120 LUNCH BREAK

1200 RETURN

1223 DRILL PB85-13

1230 DRILL PB85-14

1235 DRILL PB85-12

1240 RIG STUCK IN MUD

1258 NORTH STAR ON-SITE

1320 EXCAVATOR ON-SITE

1340 DRILL RIG REMOVED FROM MOD

1415 RIG CLEANED & OPERATIONAL, COMPLETE DAY DUE TO MAINTENANCE

Location PES - AST CLOSURE Date 7/12/21
 Project / Client HILCO

SAMPLE TABLES

TIME	SAMPLE	DESC	PID	DEPTH
0840	PB85-01	BROWN SILT	2.8	3.5
0850	PB85-02	COARSE SAND w/ SILT	7.3	3.5
0910	PB85-06	BROWN/GRAY SILT	720.7	4.5-5
0920	PB85-07	BROWN GRAY SILT*	973.2	4.5-5
0940	PB85-08	BROWN/GRAY SILT	230.3	4.5-5
0955	PB85-03	BROWN/GRAY SILT	340.7	4.5-5
1010	PB85-04	GRAY SILT	230.2	4-4.5
1020	PB85-05	GRAY SILT	30.6	3-3.5
1040	PB85-10	GRAY SILT	521.7	3-3.5
1100	PB85-16	BROWN SILT - SAND	111.8	3-3.5
1230	PB85-13	BROWN COARSE SAND	129.8	3-3.5
1300	PB85-14	BROWN/GRAY SILT	365.2	4-4.5
1350	PB85-12	BROWN/GRAY SILT	76.2	3-3.5

Remarks

Location PES AST CLOSURE Date 7/15Project / Client HILCO

DT30	TYLER	START + TPI	ON-SITE
0830	DRILL	PB 121-03	
0840	DRILL	PB121-04	
0848	DRILL	PB121-09	
0900	DRILL	PB121-09	
0905	DRILL	PB121-10	
0915	DRILL	PB121-12	
0930	DRILL	PB121-13	
0940	DRILL	PB121-14	
0950	DRILL	PB121-15	
1000	DRILL	PB121-16	
1050	DRILL	PB39-01	
1100	DRILL	PB39-02	
1115	DRILL	PB39-03	
1125	DRILL	PB39-09	
1130	DRILL	PB39-05	
1140	DRILL	PB39-06	
1150	DRILL	PB39-07	
1200	DRILL	PB85-11	
1300	DRILL	PB39-08	
1320	DRILL	PB39-09	
1330	DRILL	PB39-10	
1335	DRILL	PB39-11	
1340	DRILL	PB39-12	
1350	DRILL	PB39-13	

Location PES AST CLOSURE Date 7/15Project / Client HILCO

Time	SAMPLE	DESC	PID	DEPTH
0835	PB121-03	FINE SAND w/ GRAVEL	150.7	4-4.5
0845	PB121-04	BRICK ASH, SANDY FILL	625.1	4-4.5
0855	PB121-09	BROWN/GRAY SILT	170.8	3.5-4.0
0905	PB121-09	BROWN SAND w/ GRAVEL	50.7	3-3.5
0910	PB121-10	BROWN/GRAY SILT	308.5	4-4.5
0920	PB121-12	BROWN/GRAY SILT	701.2	4.5-5
0935	PB121-13	BROWN/GRAY SILT	981.6	4-4.5
0945	PB121-14	BROWN MED SAND	36.1	4.5-5
0955	PB121-15	GRAY CLAY w/ SILT	52.3	3-3.5
1010	PB121-16	GRAY/BROWN SILT	30.7	3-3.5
1055	PB39-01	FILL MATERIAL	2.3	3-3.5
1105	PB39-02	FILL MATERIAL	90.1	4-4.5
1120	PB39-03	FILL MATERIAL	3.4	3-3.5
1130	PB39-04	BROWN SILT	136.5	2-2.5
1135	PB39-05	BLACK COARSE SAND	93.1	3-3.5
1145	PB39-06	BLACK COARSE SAND	254.0	4-4.5
1155	PB39-07	SAND w/ GRAVEL	25.2	3-3.5
1205	PB85-11	BROWN SILT w/ SAND	663.9	4-4.5
1315	PB39-08	FILL MATERIAL	13.1	3-3.5
1325	PB39-09	BLACK COARSE SAND	764.3	4.5-5.0
1335	PB39-10	BROWN SILT w/ SAND	7.5	3-3.5
1340	PB39-11	FILL MATERIAL	2.1	3-3.5
1345	PB39-12	FILL MATERIAL	32.2	3-3.5
1400	PB39-13	FILL w/ BROWN SILT	290.1	3-3.5

Dumps
e
915

Location AST CLOSURE Date 1/16
 Project / Client HILCO

0730 PILEUP START ON SITE, TPI HAS ISSUES WITH RIG

0900 SAMPLE 38-01

0910 DRILL 38-02

0925 DRILL 38-03

0930 DRILL 38-04

0940 DRILL 38-05

1000 DRILL 38-06

1030 DRILL 38-07

1035 DRILL 38-08

1045 DRILL 38-09

1100 DRILL 38-10

1130 DRILL 38-11

1140 DRILL 38-12

1145 DRILL 38-13

1155 DRILL 38-14

1210 DRILL 85-12 (RE-SAMPLE)

1215 DRILL 85-11

1330 COMPLETE QA/QC
MEET ALPHA

 Location AST CLOSURE Date 7/16
 Project / Client HILCO

TIME	SAMPLE	DESC	PID	DEPTH
0905	38-01	BROWN SILT w/SAND	273.1	3-3.5
915	38-02	BROWN SILT w/SAND	34.5	3-3.5
920	38-03	BROWN SILT w/SAND	95.6	3-3.5
935	38-04	BROWN SILT	52.8	3-3.5
0945	38-05	GRAY BROWN SILT	9.8	3-3.5
1005	38-06	FILL MATERIAL	536.1	35-4
1035	38-07	FILL MATERIAL	72.1	35-4
1045	38-08	FILL MATERIAL	50.2	3-3.5
1055	38-09	FILL MATERIAL	80.5	3-3.5
1105	38-10	FILL MATERIAL	25.7	3-3.5
1135	38-11	BROWN SILT w/SAND	46.7	3-3.5
1145	38-12	FILL (BRICK ASH, SAND)	328.1	45-5
1155	38-13	BROWN/GRAY SILT	76.9	3-3.5
1205	38-14	BROWN SILT w/SAND	39.7	3-3.5
1210	85-12	FILL MATERIAL	42.7	3-3.5
1220	85-11	FILL MATERIAL	60.4	4-4.5

0900 TYLER SHORT ON-SITE

OBJECTIVE: ~~DATA~~ CONDUCT BORINGS IN TK 37

0930 NORTHSTAR FINISHING WORK IN TK 37 FOOT PRINT

0956 GEORGE (TPI) PREPARES RIG TO DRILL

1000 DRILL PB37-17

1005 DRILL PB37-16

1010 BATTERY ISSUES WITH RIG, GEORGE WORKING ON DIAGNOSING

1100 RIG FIXED, CONTINUES DRILLING

1105 DRILL PB37-09

1120 DRILL PB37-11

1140 DRILL PB37-10

1150 DRILL PB37-15

1210 DRILL PB37-12

1230 DRILL PB37-06

1340 DRILL PB37-03

1345 DRILL PB37-02

1400 DRILL PB37-01

1420 DRILL PB37-05

1500 COMPLETE QA/QC

1530 MEET ALPHA.

SAMPLE TABLE

TIME	SAMPLE	DESC	PID	DEPTH
1005	PB37-17	BROWN/GRAY SILT	6.3	3-3.5
1010	PB37-16	BROWN SILT w/ SOME SAND	45.1	3-3.5
1110	PB37-09	GRAY SILT w/ MED-COARSE SAND	23.1	3-3.5
1130	PB37-11	BROWN/GRAY SILT	1.6	3-3.5
1145	PB37-10	FILL MATERIAL	430.7	2.5-3.0
1155	PB37-15	FILL MATERIAL	120.0	2.5-3.0
1220	PB37-12	BROWN COARSE SAND	26.4	3-3.5
1230	PB37-06	FILL MATERIAL	271.9	2-2.5
1350	PB37-03	GRAVEL FILL	447.8	1-1.5
1355	PB37-02	BROWN SILT w/ MED SAND	93.7	3-3.5
1405	PB37-01	BROWN SILT	4.3	3-3.5
1425	PB37-05	FILL MATERIAL/SAND	36.9	3-3.5

Location PES REFINERY Date 10/4
Project / Client HILCO
82° F, CLEAR

COAL: BEGIN DRILLING TK-204 FOOTPRINT

1050 TOWER SHORT + TPI on - SITE
MOVE TO 204 FOOTPRINT

1108 TPI UNLOADS RIC

1130 CALIBRATE PID w/ 130 BUTENE.

1135 COMMENCE DRILLING PB-204-01

1145 COMMENCE DRILLING PB-204-02

1205 COMMENCE DRILLING PB-204-03

1215 COMMENCE DRILLING PB-204-04

1225 COMMENCE DRILLING PB-204-05

1235 COMMENCE DRILLING PB-204-06

1245 COMMENCE DRILLING PB-204-07

1255 COMMENCE DRILLING PB-204-08

1305 COMMENCE DRILLING PB-204-09

1310 COMMENCE DRILLING PB-204-10

1330 TPI BACK FILLS BORINGS 01-10

1360 COMMENCE DRILLING PB-204-11

1405 COMMENCE DRILLING PB-204-12

1420 COMMENCE DRILLING PB-204-13

1440 TPI BELTNS CLEAN-UP

1450 COLLECT FIELD BLANK

1500 TS COMPLETES LOC, MOVE TO NORTH YARD

1530 JS TO MEET ALPHA

Location PES REFINERY Date 10/4
Project / Client HILCO

TIME	SAMPLE	DESC	PID	DEPTH
1145	204-01	BROWN/GRAY SILT*	215,000	4.5-5.0
1155	204-02	DARK BROWN SILT w/ FINE SAND*	215,000	3-3.5
1210	204-03	BROWN/GRAY SILT*	215,000	3-3.5
1225	204-04	BROWN/GRAY SILT*	215,000	3-3.5
1235	204-05	BROWN SILT*	215,000	3-3.5
1240	204-06	DARK BROWN SILT*	215,000	3-3.5
1250	204-07	BROWN/GRAY SILT*	215,000	3-3.5
1300	204-08	BROWN SILT*	215,000	3-3.5
1310	204-09	BROWN/GRAY SILT*	215,000	3-3.5
1315	204-10	DARK BROWN SILT*	215,000	3-3.5
1355	204-11	DARK BROWN SILT*	215,000	4.5-5
1415	204-12	DARK BROWN SAND, head*	215,000	1.5-5
1430	204-13	DARK BROWN SAND/SILT*	215,000	3-3.5

* STRONG SCENT OF GASOLINE

0830 TS + TRI ON-SITE
 0840 TRI LOADS TRAILER, RE-MOULDERIZES TO TK-36
 0910 BEGIN DRILLING @ TK 36
 0915 COMMENCE DRILLING 36-01
 0920 CALIBRATE PID
 0935 DRILL 36-02
 0950 DRILL 36-03
 1005 DRILL 36-05
 1020 COMPLETE 36-05; DRILL STUCK IN MUD
 1030 DRILL 36-06
 1040 DRILL 36-07
 1100 DRILL 36-08
 1120 DRILL 36-10
 1140 DRILL 36-12
 1151 DRILL 36-13
 1205 DRILL 36-15
 1220 DRILL 36-16
 1240 DRILL 36-17
 1255 DRILL 36-18
 1410 DRILL 14A-01
 1430 DRILL 14A-02
 1500 TS MEETS w/ ALPHA.

Time	Sample	DESC	PID	DEPTH
0925	36-01	GRAY/BROWN SILT	831.1	4.5-5
0940	36-02	GRAY/BROWN SILT	715.00	3-3.5
1000	36-03	GRAY/BROWN SILT	715.00	3-3.5
1025	36-05	GRAY/BROWN SILT	189	3-3.5
1035	36-06	BLACK SILT, DAMP	707	3-3.5
1050	36-07	GRAY/BROWN SILT	1683	4-4.5
1115	36-08	BROWN SILT	862	3-3.5
1125	36-10	GRAY/BROWN SILT, FINE SAND	3421	4-4.5
1150	36-12	BROWN SILT, FINE SAND	20.2	2-2.5
1205	36-13	GRAY/BROWN SILT	5.7	3-3.5
1215	36-15	FINE SAND w/ SOME CLAY	7.6	3-3.5
1230	36-16	FINE SAND w/ SOME CLAY	10.1	3-3.5
1250	36-17	FINE SAND w/ SILT	15.8	3-3.5
1300	36-18	SANDY FILL	27.8	3-3.5
1430	14A-01	BROWN/GRAY SILT	78.6	4-4.5
1445	14A-02	SANDY FILL w/ SILT	10.8	3-3.5

DRILL

FB-1 @ 1240
 FB-2 @ 1500

Location PES REFINERY Date 10/6
Project / Client HILCO

Time	Activity	Sample ID	Notes
0740	TS +	TPI GWSITE	
	Goal	Complete TAPERS 144, 145	
0750	DRILL	144- 03 -03	
0815	DRILL	144- 03 -04	
0830	DRILL	144- 03 -05	
0900	DRILL	144-06	
0910	DRILL	144-07	
0930	DRILL	144-08	
0940	DRILL	144-09	
0950	DRILL	144-11	
1010	DRILL	144-12	
1020	DRILL	144-13	
1050	DRILL	144-14	
1115	DRILL	144-15	
1140	DRILL	145-01	
1155	DRILL	145-02	
1205	DRILL	145-03	
1215	DRILL	145-04	
1230	DRILL	145-05	FB-1 @ 1210
1240	DRILL	145-06	FB-2 @ 1200
1250	DRILL	145-07	
1300	DRILL	145-08	
1310	DRILL	145-09	
1320	DRILL	145-10	
		145-11	
		145-12	



Location PES REFINERY Date 10/6
Project / Client HILCO

TIME	SAMPLE	DESC	PID	DEPTH
0800	144-03	GRAY/BROWN SILT/SAND	15.2	3-3.5
0920	144-04	DARK BROWN SILT/SAND	7.5	4.5-5.0
0845	144-05	BROWN SILT	26.1	3-3.5
0905	144-06	BROWN SILT w/ GRAVEL	25.2	3-3.5
0915	144-07	GRAY SILT	23.2	4.5-5.0
0930	144-08	BROWN/GRAY SILT	30.2	3.5-4.0
0950	144-09	BROWN/GRAY SILT	25.1	3-3.5
1005	144-11	GRAY SILT	43.8	3-3.5
1025	144-12	DARK BROWN SILT/SAND	55.7	3-3.5
1040	144-13	BROWN/GRAY SILT	62.8	3-3.5
1100	144-14	GRAY SILT w/ FINE SAND	17.8	4.5-5.0
1130	144-15	BROWN SILT w FINE SAND	21.8	4-4.5
1150	145-01	BROWN/GRAY SILT	38.2	4.5-5
1200	145-02	BROWN SILT	29.1	3-3.5
1215	145-03	BROWN/GRAY SILT	4.3	3-3.5
1220	145-04	BROWN/GRAY SILT	4.2	3-3.5
1240	145-05	BROWN SILT w/ FINE SAND	17.9	3-3.5
1250	145-06	BROWN SAND w/ GRAVEL	7.7	3-3.5
1300	145-07	DARK BROWN SILT/SAND	3.4	3-3.5
1310	145-08	GRAY SILT	2.3	3-3.5
1325	145-09	GRAY/BROWN SILT w/ GRAVEL	7.3	3-3.5
1335	145-10	BROWN SILT w/ GRAVEL	21.7	3-3.5
1345	145-11	BROWN SILT	10.1	3-3.5
1355	145-12	BROWN SILT w/ GRAVEL	12.8	3-3.5

Location

PES REFINERY

Date

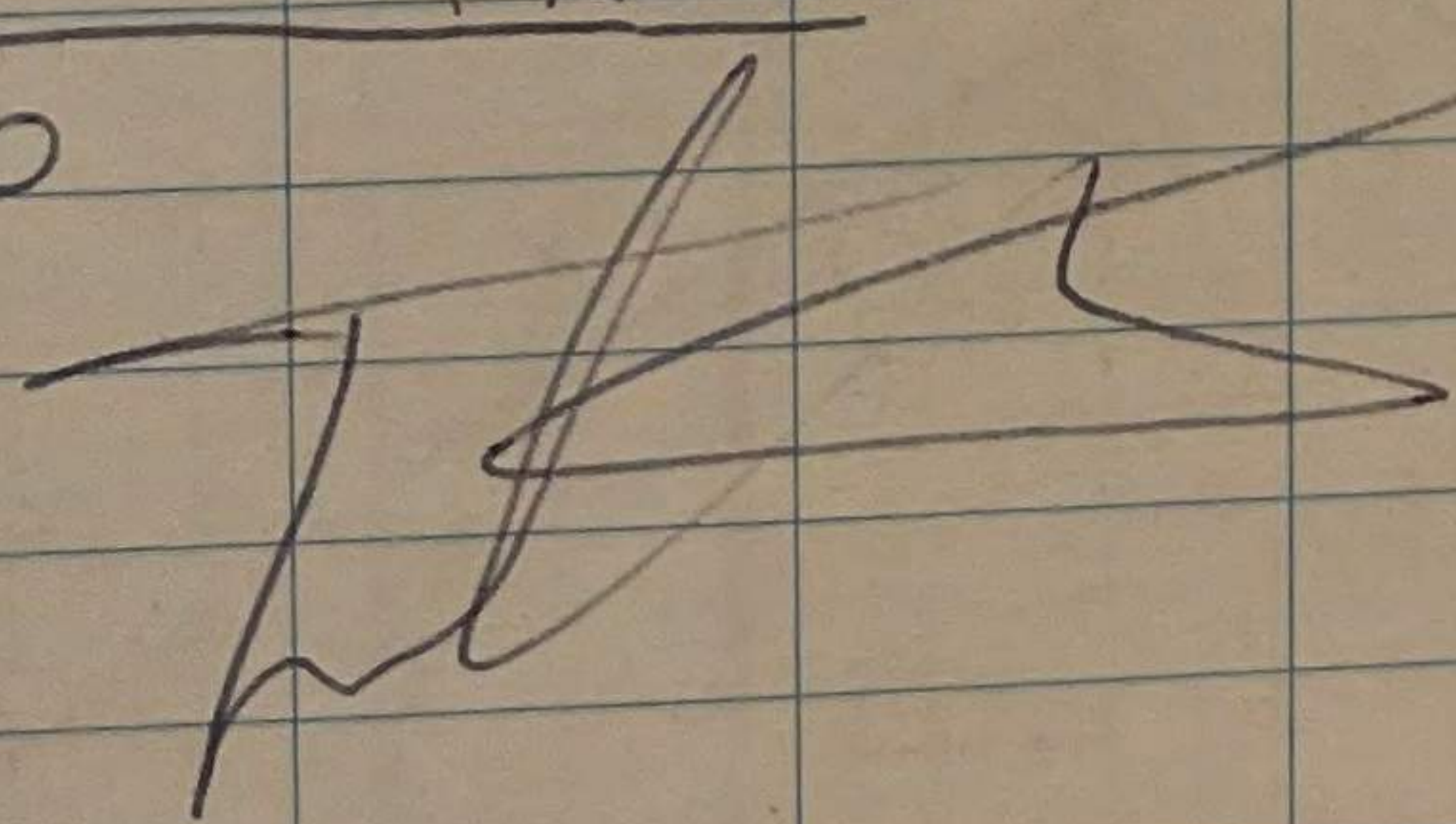
2/7

Project / Client

AST CLOSURE

0820	TYLER SHORT + TPI	ON-SITE
0900	RE-MOBILIZE	to TK-204 FOOTPRINT
0920	TPI COMMENCES	DRILLING 204-11R
1010	TPI COMPLETES	DRILLING 204-11R
1015	TPI COMMENCES	DRILLING 204-01R
1115	TPI COMPLETES	DRILLING 204-01R
1120	TPI COMMENCES	DRILLING 204-06R
12:15	TPI COMMENCES ^{COMPLETES}	DRILLING 204-06R
12:20	TPI COMMENCES	DRILLING 204-06R TK-33
	OSR	
1250	TPI COMMENCES ^{COMPLETES}	DRILLING TK-33-OSR
1310	TPI COMMENCES	DRILLING TK-29-02R
1400	TPI COMPLETES	DRILLING 29-02R
1405	TPI COMPLETES ^{COMMENCES}	DRILLING 29-03R
1440	TPI COMPLETES	DRILLING 29-03R
1505	TS MEETS ALPHA	
	TPI	LEAVES SITE

END



Location PES REFINERY Date 2/7
 Project / Client AIST CLOSURE

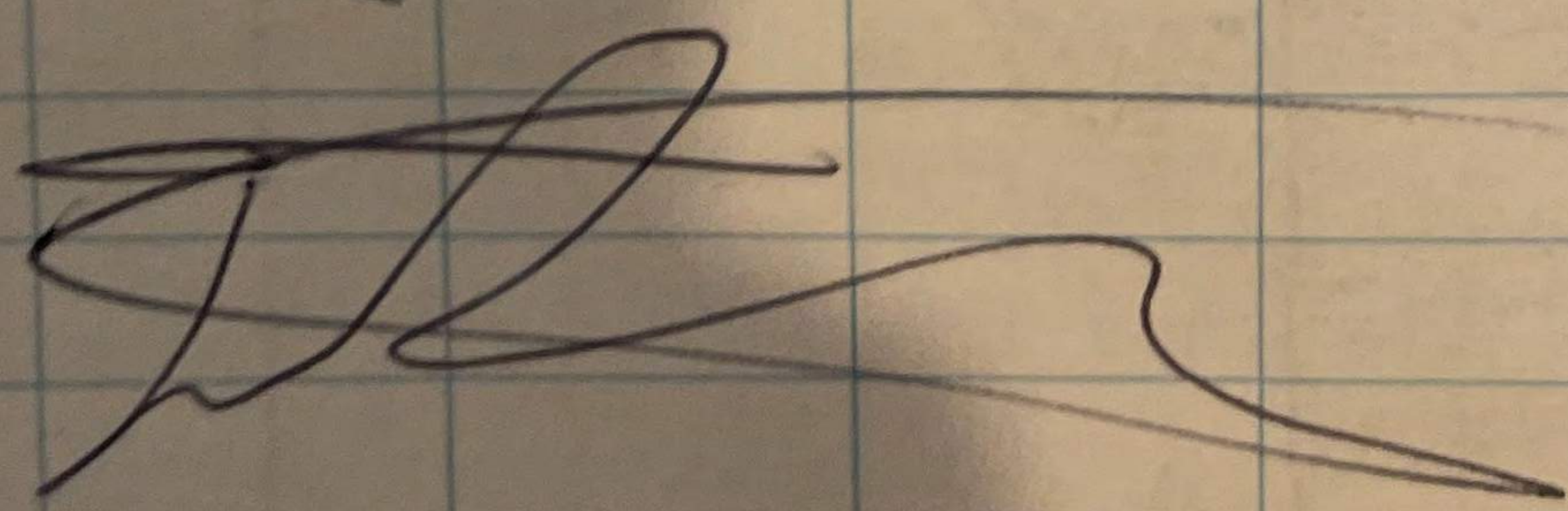
TIME	SAMPLE	DESCRIPTION	PID	DEPTH
				0.0-0.5
10:30	24-112-60-65	CLAY SILT / Brown Sand	29.8	6.0-6.5
11:40	24-112-15-118	CLAY / Brown FINE SAND	984.5	14.0-14.5 14.5-15.0
11:30	204-012-0-05	SANDY GRAVEL FILL	10.5	0.0-0.5
11:40	24-112-60-65	Brown / CLAY SILT	26.7	6.0-6.5
11:50	24-112-15-15	FINE Brown SAND	397.2	14.0-14.5 14.5-15.0
12:10	24-112-0-05	SANDY FILL - / SILT	42.9	0.0-0.5
12:25	204-012-60-65	CLAY / Brown SILT / SAND	2827.6	6.0-6.5
12:30	24-112-15-15	CLAY / Brown FINE SAND	865.3	14.0-14.5
13:00	24-112-60-65	FINE CLAY SAND - / SILT	293.1	6.0-6.5
13:10	24-112-15-15	Brown / CLAY CLAY - / SILT	184.6	14.0-14.5
14:05	24-112-10-15	SANDY FILL - / BRICK	845.9	0.0-0.5
14:15	24-112-60-65	CLAY SILT - / CLAY	425.9	6.0-6.5
14:20	24-112-15-15	Brown FINE SILT - / CLAY	413.2	14.0-14.5
14:25	24-112-60-65	CLAY FINE SAND - / SILT	765.7	6.0-6.5
14:35	24-112-15-15	Brown CLAY - / SAND	291.4	14.0-14.5

Location PGS REFINERY Date 2/8

Project / Client AST CLOSURE

40° F, CLEAR

0745	TYLER SHORT + TPI ON-SITE
0800	BEGIN SAMPLING TK29-08R
0930	COMPLETE SAMPLING TK29-08R
0940	BEGIN SAMPLING TK29-15R
1030	COMPLETE SAMPLING TK29-15R
1035	BEGIN SAMPLING TK29-28
1105	COMPLETE SAMPLING TK29-28
1110	BEGIN SAMPLING TK29-26R
1120	COMPLETE SAMPLING TK29-26R
1130	BEGIN SAMPLING TK27-01R
1215	COMPLETE SAMPLING TK-27-01R
1220	BEGIN SAMPLING TK-27-02R
1300	COMPLETE SAMPLING TK-27-02R
1305	BEGIN SAMPLING TK-27-18
1320	COMPLETE SAMPLING TK-27-18
1330	COMPLETE TK-28-05
1340	COMPLETE TK-28-08
1500	TS TO MEET ALPHA

END 

Handwritten notes on the adjacent page, including a table with columns for time and location. Visible entries include:

- 0800-0900 TK29-08R
- 0900-0930 TK29-08R
- 0930-0940 TK29-15R
- 0940-1030 TK29-15R
- 1030-1035 TK29-28
- 1035-1105 TK29-28
- 1105-1110 TK29-26R
- 1110-1120 TK29-26R
- 1120-1130 TK27-01R
- 1130-1215 TK-27-01R
- 1215-1220 TK-27-02R
- 1220-1300 TK-27-02R
- 1300-1305 TK-27-18
- 1305-1320 TK-27-18
- 1320-1330 TK-28-05
- 1330-1340 TK-28-08
- 1340-1500 TS TO MEET ALPHA

Location PES REFINERY Date 2/8
 Project / Client AST CLOSURE

SAMPLE TABLE

TIME	SAMPLE	DESCRIPTION	TID	DEPTH
0935	29-08R-6.0-6.5	BROWN SILT w/ GRAVEL	127.2	6.0-6.5
0945	29-08R-14.0-14.5	BROWN FINE SAND	333.8	14.0-14.5
1035	29-15R-0.0-0.5	SANDY FILL / ASH, SILT	563.2	0.0-0.5
1045	29-15R-6.0-6.5	BROWN / GRAY SILT	324.1	6.0-6.5
1055	29-15R-14.0-14.5	LIGHT BROWN COURSE-MED SAND	137.5	14.0-14.5
1110	29-28-0.0-0.5	BROWN / GRAY SILT w/ SAND	505.3	0.0-0.5
1115	29-28-6.0-6.5	GRAY SILT w/ FINE SAND	272.2	6.0-6.5
1125	29-28-14.0-14.5	BROWN / GRAY FINE SAND	242.0	14.0-14.5
1130	29-26R-0.0-0.5	SANDY FILL / ASH, STONE	75.1	0.0-0.5
1220	27-01R-0.0-0.5	SANDY FILL w/ GRAVEL	22.7	0.0-0.5
1225	27-01R-3.5-4.0	GRAY SILT w/ SAND	38.9	3.5-4.0
1230	27-01R-14.0-14.5	BLACK / GRAY SILT w/ FINE SAND	42.6	14.0-14.5
1305	27-02R-0.0-0.5	BROWN SANDY FILL	24.3	0.0-0.5
1310	27-02R-6.0-6.5	BROWN / GRAY SILT	124.6	6.0-6.5
1315	27-02R-14.0-14.5	BROWN GRAY FINE SAND	89.5	14.0-14.5
1325	27-18-0.0-0.5	BROWN SANDY FILL	62.5	0.0-0.5
1330	27-18-6.0-6.5	GRAY FINE SAND	92.2	6.0-6.5
1335	27-18-14.0-14.5	LIGHT BROWN CLAY	80.1	14.0-14.5
1340	28-05	SANDY FILL w/ GRAVEL	10.1	3.0-3.5
1350	28-08	SANDY FILL w/ GRAVEL	7.9	3.0-3.5

Location PES REFINERY

Date 2/9

Project / Client ABI HILCO

SAMPLE TABLES

TIME	SAMPLE	DESCRIPTION	FID	DEPTH
0830	28-09	SANDY FILL	296.3	3.0-3.5
0850	28-10	↓	56.1	3.5-4.0
0910	28-13		428.5	3.0-3.5
0920	28-14		689.4	4.0-4.5
1020	28-19R		GRAY SILT / CLAY	49.6
1040	28-14R-140-145	DARK BROWN FINE SAND	57.1	14.0-14.5
1110	37-04	SANDY FILL / CLAY	17.8	3.0-3.5
1120	37-07	SANDY FILL	36.7	3.5-4.0
1130	37-08	SANDY FILL	40.1	3.0-3.5
1140	37-13	BROWN SILT	25.2	3.0-3.5
1150	37-14	BROWN SILT	115.6	4.5-5.0
1235	37-05R-6.0-6.5	GRAY SILT	89.4	6.0-6.5
1245	37-05R-14.0-14.5	GRAY FINE SAND	169.5	14.0-14.5
1310	37-11R-0.0-0.5	BROWN SANDY FILL	25.2	0.0-0.5
1315	37-11R- 0.0-0.5 ^{6.0-6.5}	BROWN / GRAY SILT	55.7	6.0-6.5
1320	37-11R-14.0-14.5	GRAY / BROWN FINE SAND	172.5	14.0-14.5
1430	38-11R-0.0-0.5	BROWN SANDY FILL	22.5	0.0-0.5
1435	38-11R-6.0-6.5	BROWN SILT	37.9	6.0-6.5
1440	38-11R-14.0-14.5	GRAY / BROWN FINE SAND	65.7	14.0-14.5
1450	38-13R-6.0-6.5	GRAY / BROWN SILT	75.3	6.0-6.5
1500	38-13R-14.0-14.5	BROWN SILT / CLAY	42.6	14.0-14.5

PB-28-09
 PB-28-10
 PB-28-13
 PB-28-14
 PB-29-19R
 28-19R
 LEAVES TO REF
 TO TK 37, Began
 37-04
 PB-37-04
 PB-37-04
 PB-37-07
 PB-37-08
 PB-37-13
 PB-37-14
 37-05R
 37-05R
 37-11R
 37-11R
 38-11R
 38-13R

Location

Pes REFINERY

Date

2/10

Project / Client

AST CLOSURE

Time	SAMPLE	DESCRIPTION	PID	DEPTH
0915	39-12R-6.0-6.5	GRAY/BROWN SILT	52.3	6.0-6.5
0925	39-12R-14.0-14.5	BROWN SILT w/ CLAY	43.8	14.0-14.5
0945	85-06R-6.0-6.5	SANDY FILL w/ GRAY SILT	62.9	6.0-6.5
0955	85-06R-14.0-14.5	GRAY SILT - FINE SAND	52.3	14.0-14.5
1045	36-03R-6.0-6.5	BROWN/GRAY FINE SAND	156.2	6.0-6.5
1100	36-03R-14.0-14.5	GRAY SILT w/ CLAY	93.8	14.0-14.5
1130	36-07R-0.0-0.5	SANDY FILL w/ GRAVEL	9.1	0.0-0.5
1140	36-07R-6.0-6.5	GRAY/BROWN SILT	24.8	6.0-6.5
1150	36-07R-14.0-14.5	GRAY/BROWN SILT w/ CLAY	74.0	14.0-14.5
1210	36-04	SANDY FILL w/ SILT	22.6	3.0-3.5
1230	36-09	SANDY FILL w/ GRAVEL	58.1	3.5-4.0
1240	36-11	↓	112.8	3.0-3.5
1250	36-14		85.6	3.0-3.5
1310	35-06	SANDY FILL w/ SILT	9.5	3.0-3.5
1320	35-09	↓	3.1	3.0-3.5
1330	35-10		2.7	3.0-3.5
1340	35-11		BROWN/GRAY SILT w/ SAND	12.4
1350	35-13	SANDY FILL w/ SILT	35.6	2.5-3.0
1400	35-14	SANDY FILL w/ SILT	17.0	3.0-3.5
1420	35-08R-14.0-14.5	BROWN/GRAY FINE SAND	86.5	14.0-14.5
1430	35-08R-6.0-6.5	BROWN/GRAY FINE SAND	82.7	6.0-6.5

DU-26

Location

PES ROBINERY

Date

2/11

Project / Client

AST CLOSURE

SAMPLE TABLES

SAMPLE

TIME	SAMPLE	DESCRIPTION	PRO	DEPTH
0945	40-12R-0.0-0.5	SANDY FILL w/ GRAVEL	3.2	0.0-0.5
0955	40-12R-6.0-6.5	SANDY FILL w/ BROWN SILT	18.3	6.0-6.5
1000	40-12R-14.0-14.5	GRAY SILT w/ FINE SAND, CLAY	15.2	14.0-14.5
1030	34-03R-0.0-0.5	SANDY FILL w/ GRAVEL	46.3	0.0-0.5
1040	34-03R-6.0-6.5	SANDY FILL, GRAY SILT	77.0	6.0-6.5
1050	34-03R-14.0-14.5	GRAY SILT w/ CLAY	50.9	14.0-14.5
1120	34-11R-6.0-6.5	BROWN / GRAY SILT, FINE SAND	25.6	6.0-6.5
1130	34-11R-14.0-14.5	BROWN / GRAY SILT, CLAY	17.9	14.0-14.5
1140	PB-3404	SANDY FILL w/ GRAVEL	29.2	3.0-3.5
1145	34-08	↓	101.7	2.5-3.0
1150	34-09		124.7	3.0-3.5
1155	34-10		38.9	2.0-2.5
1200	34-13		283.6	4.5-5.0

Location

AES REFINERY

Date

2/19 135

Project / Client

AST Closure

SAMPLE TABLE

TIME	SAMPLE	DESCRIPTION	PID	DEPTH
0915	43-01	Brown SANDY FILL	28.1	3.0-3.5
0930	43-02	"	10.4	3.0-3.5
0945	43-03	"	3.7	3.5-4.0
1000	43-05	"	7.5	3.0-3.5
1020	43-06	"	6.8	4.0-4.5
1020	43-07	"	38.9	3.5-4.0
1030	43-08	"	32.4	3.5-4.0
1040	43- 09	"	17.9	3.5-4.0
1050	43- 10	"	18.3	3.0-3.5
1130	83-04 43-11	Brown SANDY FILL - SILT	19.9	3.0-3.5
1140	83-05	Brown SANDY FILL, BRICK, ASH	45.9	2.5-3.0
1150	83-06	"	15.7	4.5-5.0
1200	83-11	"	12.3	4.5-5.0
1230	85-09	Brown SANDY FILL	17.2	3.5-4.0
1345	83-01R	Brown/GRAY FINE SAND	9.5	14.0-14.5
1415	83-01R	Brown SANDY FILL w/ GRAY SILT	15.2	6.0-6.5
1445	42-09B	GRAY SILT w/ CLAY	11.8	14.0-14.5
1500	42-09B	Brown/GRAY SILT	9.7	6.0-6.5

Rate in the Rain

Location PES REFINERY Date 2/15

Project / Client AST CLOSURE

TIME	SAMPLE	DESCRIPTION	RID	DEPTH
0915	842-042-0.0-0.5	SANDY FILL	205.9	0.0-0.5
0925	-042-6.0-6.5	GRAY FINE SAND	895.2	6.0-6.5
0935	-042-14.0-14.5	GRAY SILT w/CLAY	1109.	14.0-14.5
1030	84-11	SANDY FILL	243.7	3.0-3.5
1040	84-13	SANDY FILL	158.9	3.5-4.0
1050	84-14	SANDY FILL	693.2	3.0-3.5
1100	84-17	SANDY FILL	151.5	3.5-4.0
1300	128-052-0.0-0.5	SANDY FILL	43.7	0.0-0.5
1310	128-052-6.0-6.5	GRAY SILT w/SAND	47.9	6.0-6.5
1320	128-052-14.0-14.5	GRAY SILT w/CLAY	39.8	14.0-14.5
1340	129-012-0.0-0.5	SANDY FILL	9.2	0.0-0.5
1350	129-012-6.0-6.5	GRAY FINE SAND	29.3	6.0-6.5
1400	129-012-14.0-14.5	GRAY FINE SAND, CLAY	58.4	14.0-14.5
1420	124-18-6.0-6.5	SANDY FILL w/SILT	109.7	6.0-6.5
1430	124-18-14.0-14.5	GRAY/BROWN SILT	152.7	14.0-14.5

D02-27

Rite in the Rain

Location

Des DEFINELY

Date

2/16

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Project / Client

SAMPLE TABLES

Time	Sample	DESCRIPTION	PID	SAMPLE DEPTH
0830	129-07	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
0845	129-08	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
0900	129-09	SANDY FILL w/ GRAVEL	0.7	3.0-3.5
0930	129-10	SANDY FILL w/ GRAVEL	3.3	3.5-4.0
1030	129-11	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
1040	129-12	SANDY FILL w/ GRAVEL	2.9	4.5-5.0
1050	129-13	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
1100	129-16	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
1215	128-06	BROWN SAND w/ SILT	0.0	3.0-3.5
1230	128-07	BROWN SANDY FILL w/ SILT	0.0	3.0-3.5
1245	128-09	SANDY FILL w/ GRAVEL	3.3	3.5-4.0
1320	128-10	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
1345	128-11	SANDY FILL w/ GRAVEL	0.0	3.0-3.5
1400	128-12	SANDY FILL w/ GRAVEL	2.1	2.5-3.0
1430	128-14	SANDY FILL w/ GRAVEL	2.5	3.0-3.5
1450	128-15	SANDY FILL w/ GRAVEL	0.0	3.0-3.5

12-28

Appendix F

Release Notification





June 15, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

**Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Notification of Release Form
PADEP Facility ID #51-33620 - Point Breeze Refinery**

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC's Point Breeze site.

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

Enclosures: PADEP Notification of Release Form (Point Breeze)

cc:

Robert Armstrong (Northstar)
Gary Bowman (Northstar)
Charles Barksdale (Hilco)
George Toth (Hilco)
Stephanie Eggert (Hilco)
Joe Jeray (Hilco)
Kris Satterthwaite (JD2 Environmental)

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>Phla Ref Point Breeze</u>		Facility I.D. Number <u>51-33620</u>	Owner Name <u>Philadelphia Energy Solutions Refining and Marketing, LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>3144 W. Passyunk Avenue</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>
County <u>Philadelphia</u>		Municipality <u>Philadelphia</u>	Telephone Number <u>(610) 636 - 4574</u>		
Contact Person <u>Gary Bowman</u>		Telephone Number <u>(610) 636 - 4574</u>	Operator Name <u>Gary Bowman</u>		Telephone Number <u>(610) 636 - 4574</u>

III. REGULATED SUBSTANCE INFORMATION					
A. Type of Product(s) Involved (Mark All That Apply <input checked="" type="checkbox"/>): Both O/O and I/I	B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply <input checked="" type="checkbox"/>): Both O/O and I/I			
Leaded Gasoline <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Unleaded Gasoline <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Aviation Gasoline <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Kerosene <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Jet Fuel <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Diesel Fuel <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
New Motor Oil <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Used Motor Oil <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Fuel Oil No. 1 <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Fuel Oil No. 2 <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Fuel Oil No. 4 <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Fuel Oil No. 5 <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Fuel Oil No. 6 <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]
Other (Specify) <u>15MV1 / Distillate</u> <input checked="" type="checkbox"/>	<u>u k n o w n</u>	<input checked="" type="checkbox"/>	[S]	<input checked="" type="checkbox"/>	[C]
Unknown <input type="checkbox"/>	<input type="checkbox"/>	[S]	<input type="checkbox"/>	[C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)					
Date Release was Confirmed: <u>06 / 10 / 2021</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> </u> / <u> </u> / <u> </u> Municipality <u>Philadelphia</u>			
Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>06 / 10 / 2021</u> Office <u>Southeast Region</u>		Date: <u> </u> / <u> </u> / <u> </u> Municipality <u> </u>			
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>004A</u>) <input type="checkbox"/>	During Closure <input checked="" type="checkbox"/>	Soil <input checked="" type="checkbox"/>			
Piping System (Aboveground Regulated) <input type="checkbox"/>	Lining Installation <input type="checkbox"/>	Sediment <input type="checkbox"/>			
Piping System (Underground Regulated) <input checked="" type="checkbox"/>	Routine Leak Detection <input type="checkbox"/>	Surface Water <input checked="" 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 checked="" 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) <u> </u> <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"/>):					
Faulty Installation <input type="checkbox"/>	Monitoring Well Sample Results <input type="checkbox"/>				
Corrosion <input type="checkbox"/>	Property Transfer <input type="checkbox"/>				
Physical/Mechanical Failure <input type="checkbox"/>	Other (Specify) <u> </u> <input type="checkbox"/>				
Spill During Delivery <input type="checkbox"/>	Unknown <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) <u> </u> <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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free Product Recovered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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)	<input 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: 06 / 10 / 2021
m d yIndication of Suspected Release / Contamination (Mark All That Apply):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Unusual Level of Vapors | <input type="checkbox"/> Containment Sump Test Failure |
| <input type="checkbox"/> Erratic Behavior of Product Dispensing Equipment | <input type="checkbox"/> Spill Prevention Equipment Test Failure |
| <input type="checkbox"/> Release Detection Results Indicate a Release | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Discovery of Holes in the Storage Tank | |

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)Date the Confirmed Contamination was Observed: 06 / 10 / 2021
m d yExtent of Confirmed Contamination (Mark All That Apply):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Product Stained or Product Saturated Soil or Backfill | <input type="checkbox"/> Free Product or Sheen on the Ground Water Surface |
| <input type="checkbox"/> Pondered Product | <input type="checkbox"/> Free Product or Sheen on Surface Water |
| <input checked="" type="checkbox"/> Free Product or Sheen on Pondered Water | <input type="checkbox"/> Other (Specify) _____ |

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.

Hydrocarbon vapors were detected within the tank containment dike in the area immediately adjacent to the north side of demolished PES Tank # PB-83 (PADEP Tank # 004A).

A hydrocarbon sheen was also observed on the ponded water in the same area of Tank PB-83.

The ponded water was removed via vacuum truck upon discovery on 6/10/2021 and the next day 6/11/2021.

In addition, facility personell indicated a release was discovered and reported to the PADEP in 2013 related to a leak in tank PB-83 underground piping.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Gary Bowman, 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

06 / 10 / 2021 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, Kristian Satterthwaite, 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

06 / 10 / 2021 Date

5081 Inspector Certification Number

1557 Company Certification Number



July 15, 2021

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 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

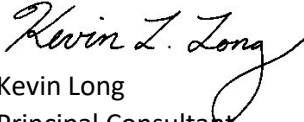
Dear Mr. Estel:

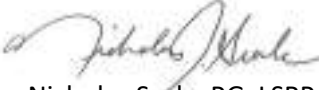
Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on July 13, 2021 that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-27 (019A), PB-28 (020A), PB-29 (021A), and PB-33 (002A). A prior notification was submitted for tank 004A in this same tank group (Tank Group 02). The previous incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

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.


Kevin Long
Principal Consultant


Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PAEP Notification of Release Form (Tank Group 02)

July 15, 2021
Mr. Ron Estel
PADEP Notification of Release Form - Tank Group 02

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP)
Ralph DiPietro (Philadelphia L & I)

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>		Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>111 S. Wacker Dr, Suite 3000</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Chicago</u>	State <u>IL</u>	Zip Code <u>60606 -</u>
County <u>Philadelphia</u>	Municipality <u>Philadelphia</u>		Telephone Number <u>(312) 796 - 6564</u>		
Contact Person <u>Anne Garr</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 checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unleaded Gasoline <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Aviation Gasoline <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Kerosene <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Jet Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Diesel Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Used Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 1 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 2 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 4 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 5 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 6 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Other (Specify) <u>Alkylate/Heavy Reformate</u> <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unknown <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)		
Date Release was Confirmed: <u>07 / 13 / 2021</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>07 / 13 / 2021</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>07 / 13 / 2021</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"/>): <u>Tank (DEP Assigned Nos. 019A, 020A, 021A, 002A) <input checked="" type="checkbox"/></u>	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>): <u>During Closure..... <input type="checkbox"/></u>	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>): <u>Soil <input checked="" type="checkbox"/></u>
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"/>): <u>Faulty Installation..... <input type="checkbox"/></u>	Monitoring Well Sample Results <input type="checkbox"/>	
Corrosion..... <input type="checkbox"/>	Property Transfer..... <input type="checkbox"/>	
Physical/Mechanical Failure..... <input type="checkbox"/>	Other (Specify) <u>Site Assessment Sampling</u> <input checked="" type="checkbox"/>	
Spill During Delivery <input type="checkbox"/>	Unknown <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: 07 / 13 / 2021
 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: 07 / 13 / 2021
 m d y

Extent of Confirmed Contamination (Mark All That Apply

- Product Stained or Product Saturated Soil or Backfill
- Ponded Product
- Free Product or Sheen on Ponded 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 02 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, ethyl benzene, methyl tert-butyl ether, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, naphthalene, and lead. 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 related to exceedances identified in sampling associated with tanks 019A, 020A, 021A, 002A. A prior notification was submitted for tank 004A in this same tank group (Tank Group 02). The previous incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne 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

7 / 14 / 2021
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



August 5, 2021

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 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

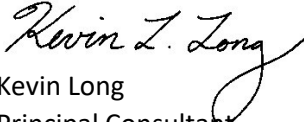
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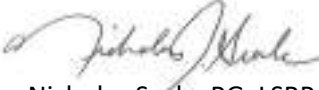
Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 3, 2021 that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-34 (022A), PE-35 (023A), PB-40 (026A), PB-42 (027A), PB-84 (029A), PB-128 (032A) and PB-129 (033A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

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.


Kevin Long
Principal Consultant


Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

August 5, 2021
Mr. Ron Estel
PADEP Notification of Release Form - Tank Group 02

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.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)

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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.

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- 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>		Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>111 S. Wacker Dr, Suite 3000</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Chicago</u>	State <u>IL</u>	Zip Code <u>60606 -</u>
County <u>Philadelphia</u>	Municipality <u>Philadelphia</u>		Telephone Number <u>(312) 796 - 6564</u>		
Contact Person <u>Anne Garr</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 checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unleaded Gasoline <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Aviation Gasoline <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Kerosene <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Jet Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Diesel Fuel <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Used Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 1 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 2 <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Fuel Oil No. 4 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 5 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 6 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Other (Specify) <u>Heavy Reformate</u> <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unknown <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: <u>08 / 03 / 2021</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: _____ / _____ / _____ Municipality <u>Philadelphia</u>
Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>08 / 03 / 2021</u> Office <u>Southeast Region</u>	Date: _____ / _____ / _____ Municipality _____

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>022A, 023A, 026A, 027A, 029A, 032A, 033A</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: 08 / 03 / 2021
 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: 08 / 03 / 2021
 m d y

Extent of Confirmed Contamination (Mark All That Apply

- Product Stained or Product Saturated Soil or Backfill
- Ponded Product
- Free Product or Sheen on Pondered 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 02 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, ethyl benzene, naphthalene, toluene, 1,2,4-trimethylbenzene, xylenes, and lead. 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.

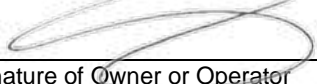
This notification is a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne 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

08 / 04 / 2021
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



August 16, 2021

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 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

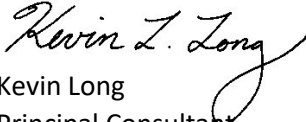
Dear Mr. Estel:

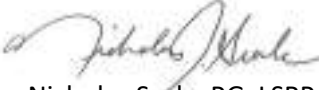
Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 12, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-38 (003A), PE-339 (025A), and PB-85 (030A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

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.


Kevin Long
Principal Consultant


Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

August 16, 2021
Mr. Ron Estel
PADEP Notification of Release Form - Tank Group 02

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.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>		Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>111 S. Wacker Dr, Suite 3000</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Chicago</u>	State <u>IL</u>	Zip Code <u>60606 -</u>
County <u>Philadelphia</u>	Municipality <u>Philadelphia</u>		Telephone Number <u>(312) 796 - 6564</u>		
Contact Person <u>Anne Garr</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 checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unleaded Gasoline <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Aviation Gasoline <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Kerosene <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Jet Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Diesel Fuel <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Used Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 1 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 2 <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Fuel Oil No. 4 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 5 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 6 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Other (Specify) _____ <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Unknown <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)	
Date Release was Confirmed: <u>08</u> / <u>12</u> / <u>2021</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>08</u> / <u>16</u> / <u>2021</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>08</u> / <u>12</u> / <u>2021</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"/>): <u>Both O/O and I/I</u>	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>
Tank (DEP Assigned Nos. 003A, 025A, 030A)..... <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"/>): <u>Both O/O and I/I</u>	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: 08 / 12 / 2021
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: 08 / 12 / 2021
m d y

Extent of Confirmed Contamination (Mark All That Apply

- Product Stained or Product Saturated Soil or Backfill
- Ponded Product
- Free Product or Sheen on Ponded 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 02 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, ethyl benzene, naphthalene, toluene, 1,2,4-trimethylbenzene, and lead. 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 a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne 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

8 / 12 / 2021
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



August 24, 2021

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 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

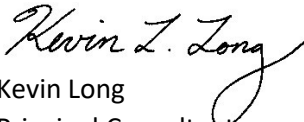
Dear Mr. Estel:

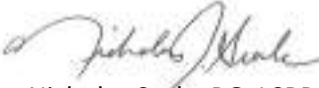
Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 20, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the tank PB-37 (024A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraperase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraperase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.


Kevin Long
Principal Consultant


Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

August 24, 2021
Mr. Ron Estel
PADEP Notification of Release Form - Tank Group 02

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>		Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>111 S. Wacker Dr, Suite 3000</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Chicago</u>	State <u>IL</u>	Zip Code <u>60606 -</u>
County <u>Philadelphia</u>	Municipality <u>Philadelphia</u>		Telephone Number <u>(312) 796 - 6564</u>		
Contact Person <u>Anne Garr</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 checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unleaded Gasoline <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Aviation Gasoline <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Kerosene <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Jet Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Diesel Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Used Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 1 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 2 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 4 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 5 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 6 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Other (Specify) _____ <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Unknown <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)	
Date Release was Confirmed: <u>08 / 20 / 2021</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: _____ / _____ / _____ Municipality <u>Philadelphia</u>
Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>08 / 20 / 2021</u> Office <u>Southeast Region</u>	Date: _____ / _____ / _____ Municipality _____

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>024A</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"/>	
	Monitoring Well Sample Results <input type="checkbox"/>	
Cause (Mark All That Apply <input checked="" type="checkbox"/>): _____	Property Transfer..... <input type="checkbox"/>	
Faulty Installation..... <input type="checkbox"/>	Other (Specify) <u>Site Assessment Sampling</u> <input checked="" type="checkbox"/>	
Corrosion..... <input type="checkbox"/>	Unknown <input type="checkbox"/>	
Physical/Mechanical Failure..... <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: 08 / 20 / 2021
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: 08 / 20 / 2021
m d y

Extent of Confirmed Contamination (Mark All That Apply

- Product Stained or Product Saturated Soil or Backfill
- Ponded Product
- Free Product or Sheen on Ponded 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 02 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 lead. 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 a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne 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

08 / 23 / 2021
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



November 2, 2021

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 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

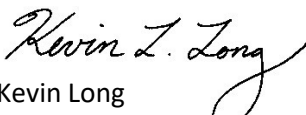
Dear Mr. Estel:

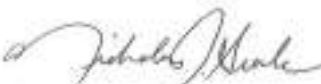
Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on October 27, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the tank PB-36 (087A) and PB-204 (041A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terrphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terrphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.


Kevin Long
Principal Consultant


Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

November 2, 2021

Mr. Ron Estel

PADEP Notification of Release Form - Tank Group 02

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.

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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>		Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u>		
Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u>			Address <u>111 S. Wacker Dr, Suite 3000</u>		
City <u>Philadelphia</u>	State <u>PA</u>	Zip Code <u>19141 - 5299</u>	City <u>Chicago</u>	State <u>IL</u>	Zip Code <u>60606 -</u>
County <u>Philadelphia</u>	Municipality <u>Philadelphia</u>		Telephone Number <u>(312) 796 - 6564</u>		
Contact Person <u>Anne R. Garr</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 checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unleaded Gasoline <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Aviation Gasoline <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Kerosene <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Jet Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Diesel Fuel <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
New Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Used Motor Oil <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 1 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 2 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 4 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 5 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Fuel Oil No. 6 <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]
Other (Specify) <u>Recovered Oil</u> <input checked="" type="checkbox"/> <u>U N K N O W N</u> _____ <input type="checkbox"/> [S] <input checked="" type="checkbox"/> [C]
Unknown <input type="checkbox"/> _____ <input type="checkbox"/> [S] <input type="checkbox"/> [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)		
Date Release was Confirmed: <u>10 / 27 / 2021</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>11 / 2 / 2021</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>10 / 27 / 2021</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"/>): <u>Both O/O and I/I</u>	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>): <u>O/O Only</u>	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>
Tank (DEP Assigned Nos. <u>041A & 087A</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"/>): <u>Both O/O and I/I</u>	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: 10 / 27 / 2021
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: 10 / 27 / 2021
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 02 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, 1,2-dibromoethane ethyl benzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene and lead. 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 a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

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

11 / 02 / 2021
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 G

Site Assessment and Site Characterization Soil Results



Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-26-01	PB-26-02	PB-26-03	PB-26-04	PB-26-05	PB-26-06	PB-26-07	PB-26-08	PB-26-09
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-26-01-SS01	PB-26-02-SS01	PB-26-03-SS01	PB-26-04-SS01	PB-26-05-SS01	PB-26-06-SS01	PB-26-07-SS01	PB-26-08-SS01	PB-26-09-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3.5 - 4	3 - 3.5	4.5 - 5	4 - 4.5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	NA	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	NA
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol				ND (2.55)	ND (2.34)	ND (2.38)	ND (2.49)	ND (2.31)	ND (2.34)	ND (2.34)	ND (2.29)	ND (2.42)
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	NA	NA	NA	NA	NA	NA	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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	PB-26-10	PB-26-11	PB-26-12	PB-26-13	PB-26-14	PB-26-15	PB-26-16	PB-27-01R	PB-27-01			
Field Sample ID	PB-26-10-SS01	PB-26-11-SS01	PB-26-12-SS01	PB-26-13-SS01	PB-26-14-SS01	PB-26-15-SS01	PB-26-16-SS01	PB-27-01R-0.0-0.5	PB-27-01-SS01			
Collection Depth (ft bgs)	2.5 - 3	3.5 - 4	4.5 - 5	4.5 - 5	4 - 4.5	4 - 4.5	3.5 - 4	0 - 0.5	2.5 - 3			
Sample Date	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	6/7/2021	2/8/2022	6/7/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	NA	NA	NA	NA	<u>16 (0.94)</u>			
Cumene	10000	10000	2500	NA	NA	NA	NA	NA	33 (1.9)			
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	NA	NA	ND (0.94)			
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	NA	NA	ND (1.9)			
Ethanol				ND (2.44)	ND (2.44)	ND (2.43)	ND (2.4)	ND (2.48)	ND (2.44)	ND (2.4)	NA	
Ethyl Benzene	880	1000	70	NA	NA	NA	NA	NA	NA	NA	<u>130 (1.9)</u>	
Methyl tert-butyl ether	8500	9800	2	NA	NA	NA	NA	NA	NA	NA	<u>49 (3.8)</u>	
Toluene	10000	10000	100	NA	NA	NA	NA	NA	NA	NA	89 (1.9)	
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	NA	NA	NA	NA	NA	<u>400 (3.8)</u>	
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	NA	NA	NA	NA	NA	<u>150 (3.8)</u>	
Xylenes (total)	7900	9100	1000	NA	NA	NA	NA	NA	NA	NA	770 J (3.8)	
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	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	NA	NA	NA	NA	NA	NA	NA	98 (7.5)	
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	273 (2.3)	182 (2.39)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-27-01R	PB-27-02R	PB-27-02	PB-27-02R	PB-27-02R	PB-27-03	PB-27-04	PB-27-04	PB-27-05
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-27-01R-3.5-4.0	PB-27-02R-0.0-0.5	PB-27-02-SS01	PB-27-02R-6.0-6.5	PB-27-02R-14.0-14.5	PB-27-03-SS01	PB-27-04-SS01	PB-27-04-DUP-03	PB-27-05-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3.5 - 4	0 - 0.5	3 - 3.5	6 - 6.5	14 - 14.5	3.5 - 4	3.5 - 4	3.5 - 4	3.5 - 4
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	2/8/2022	2/8/2022	6/7/2021	2/8/2022	2/8/2022	6/8/2021	6/8/2021	6/8/2021	6/8/2021
Comments		MSCs	TDS≤2500								FD	
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	NA	<u>69 (3.8)</u>	<u>19 (0.15)</u>	<u>6.6 (0.068)</u>	<u>39 (0.34)</u>	<u>1.3 (0.03)</u>	<u>0.64 (0.035)</u>	<u>60 (0.92)</u>
Cumene	10000	10000	2500	NA	NA	61 (7.6)	NA	NA	32 (0.68)	3.2 (0.061)	1.9 (0.07)	56 (1.8)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	ND (3.8)	NA	NA	ND (0.34)	ND (0.03)	ND (0.035)	ND (0.92)
1,2-Dichloroethane	85	98	0.5	NA	NA	ND (7.6)	NA	NA	ND (0.68)	ND (0.061)	ND (0.07)	ND (1.8)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	<u>250 (7.6)</u>	<u>100 (5.9)</u>	31 (0.14)	<u>200 (2.7)</u>	0.56 (0.061)	0.45 (0.07)	<u>250 (1.8)</u>
Methyl tert-butyl ether	8500	9800	2	NA	NA	<u>120 (15)</u>	<u>2.5 (0.59)</u>	0.38 (0.27)	<u>36 (1.4)</u>	0.022 J (0.12)	0.019 J (0.14)	<u>9.5 (3.7)</u>
Toluene	10000	10000	100	NA	NA	<u>160 (7.6)</u>	<u>170 (5.9)</u>	12 (0.14)	<u>370 (2.7)</u>	0.36 (0.061)	0.27 (0.07)	31 (1.8)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	<u>530 (15)</u>	180 (12)	NA	<u>470 (5.5)</u>	7.2 (0.12)	6.4 (0.14)	<u>480 (3.7)</u>
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	<u>200 (15)</u>	57 (0.59)	NA	<u>180 (1.4)</u>	0.27 (0.12)	0.3 (0.14)	<u>180 (3.7)</u>
Xylenes (total)	7900	9100	1000	NA	NA	<u>1400 J (15)</u>	460 J (12)	NA	<u>1160 J (5.5)</u>	1.33 J (0.12)	1.21 J (0.14)	<u>1210 J (3.7)</u>
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.63 (0.2)	0.036 J (0.2)	<u>170 (31)</u>	0.8 (0.2)	NA	<u>59 (2.7)</u>	3.3 (0.24)	2.4 (0.28)	<u>93 (7.4)</u>
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	16.9 (2.32)	<u>1210 (2.38)</u>	<u>1580 (2.49)</u>	9 (2.35)	NA	38.8 (2.35)	392 (2.32)	101 (2.39)	63 (2.38)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-27-06	PB-27-07	PB-27-08	PB-27-09	PB-27-10	PB-27-11	PB-27-12	PB-27-13	PB-27-14	
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-27-06-SS01	PB-27-07-SS01	PB-27-08-SS01	PB-27-09-SS01	PB-27-10-SS01	PB-27-11-SS01	PB-27-12-SS01	PB-27-13-SS01	PB-27-14-SS01	
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	4 - 4.5	3 - 3.5	4 - 4.5	4 - 4.5	3.5 - 4	4.5 - 5	4.5 - 5	3 - 3.5	3 - 3.5	
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	6/8/2021	6/8/2021	6/8/2021	6/8/2021	6/8/2021	6/8/2021	6/8/2021	6/8/2021	6/8/2021	
Comments				TDS≤2500									
Volatile Organic Compounds													
Benzene	280	330	0.5	<u>39 (0.3)</u>	<u>3 (0.066)</u>	<u>30 (0.58)</u>	<u>32 (0.61)</u>	<u>17 (0.15)</u>	<u>23 (0.3)</u>	0.0015 (0.0005)	0.043 (0.0005)	0.052 (0.00048)	
Cumene	10000	10000	2500	17 (0.6)	9 (0.13)	11 (1.2)	30 (1.2)	8.6 (0.3)	17 (0.61)	0.25 (0.001)	0.036 (0.001)	0.016 (0.00096)	
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.3)	ND (0.066)	ND (0.58)	ND (0.61)	ND (0.15)	ND (0.3)	ND (0.0005)	ND (0.0005)	ND (0.00048)	
1,2-Dichloroethane	85	98	0.5	ND (0.6)	ND (0.13)	ND (1.2)	ND (1.2)	ND (0.3)	ND (0.61)	ND (0.001)	ND (0.001)	ND (0.00096)	
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethyl Benzene	880	1000	70	<u>110 (0.6)</u>	1.5 (0.13)	<u>97 (1.2)</u>	<u>140 (1.2)</u>	38 (0.3)	54 (0.61)	0.0011 (0.001)	0.0014 (0.001)	0.0037 (0.00096)	
Methyl tert-butyl ether	8500	9800	2	<u>11 (2.4)</u>	ND (0.26)	ND (2.3)	1 J (2.4)	<u>7.2 (0.59)</u>	1.3 (1.2)	ND (0.002)	0.003 (0.002)	0.0058 (0.0019)	
Toluene	10000	10000	100	100 (0.6)	1 (0.13)	<u>240 (1.2)</u>	<u>110 (1.2)</u>	67 (0.3)	38 (0.61)	0.0054 (0.001)	0.0024 (0.001)	0.0035 (0.00096)	
1,2,4-Trimethylbenzene	4700	5400	300	300 (2.4)	0.59 (0.26)	200 (2.3)	250 (2.4)	64 (0.59)	150 (1.2)	ND (0.002)	0.0023 (0.002)	0.0083 (0.0019)	
1,3,5-Trimethylbenzene	4700	5400	93	<u>98 (1.2)</u>	1.2 (0.26)	75 (2.3)	91 (2.4)	25 (0.59)	56 (1.2)	0.00036 J (0.002)	0.0013 J (0.002)	0.0038 (0.0019)	
Xylenes (total)	7900	9100	1000	650 J (2.4)	2.66 J (0.26)	500 J (2.3)	620 J (2.4)	163 J (0.59)	263 J (1.2)	0.0112 J (0.002)	0.018 J (0.002)	0.0095 J (0.0019)	
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	
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	77	25	<u>27 (2.4)</u>	1.3 (0.52)	20 (4.7)	<u>53 (4.9)</u>	13 (1.2)	<u>49 (2.4)</u>	0.0008 J (0.004)	0.00079 J (0.004)	0.023 (0.0038)	
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	22.8 (2.4)	224 (2.41)	32.9 (2.25)	11.3 (2.39)	11.8 (2.35)	11.7 (11.7)	112 (11.9)	215 (2.27)	11 (2.36)	

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1

Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-27-15	PB-27-16	PB-27-17	PB-27-18	PB-27-18	PB-28-01	PB-28-02	PB-28-03	PB-28-04
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-27-15-SS01	PB-27-16-SS01	PB-27-17-SS01	PB-27-18-0.0-0.5	PB-27-18-6.0-6.5	PB-28-01-SS01	PB-28-02-SS01	PB-28-03-SS01	PB-28-04-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	4 - 4.5	3 - 3.5	0 - 0.5	6 - 6.5	3 - 3.5	3 - 3.5	4 - 4.5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	6/8/2021	6/8/2021	6/8/2021	2/8/2022	2/8/2022	6/8/2021	6/8/2021	6/8/2021	6/8/2021
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>9.8 (0.3)</u>	0.0017 (0.00058)	0.024 J (0.027)	0.034 (0.026)	0.016 J (0.038)	0.2 (0.08)	0.13 (0.031)	0.049 J (0.074)	0.18 (0.029)
Cumene	10000	10000	2500	18 (0.6)	0.17 (0.0012)	4.3 (0.054)	NA	NA	1.4 (0.16)	1.7 (0.062)	3.2 (0.15)	0.71 (0.058)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.3)	ND (0.00058)	ND (0.027)	NA	NA	ND (0.08)	ND (0.031)	ND (0.074)	ND (0.029)
1,2-Dichloroethane	85	98	0.5	ND (0.6)	ND (0.0012)	ND (0.054)	NA	NA	ND (0.16)	ND (0.062)	ND (0.15)	ND (0.058)
Ethanol				NA	NA	NA			NA	NA	NA	NA
Ethyl Benzene	880	1000	70	60 (0.6)	0.0003 J (0.0012)	0.93 (0.054)	0.0078 J (0.051)	0.026 J (0.077)	8.2 (0.16)	4.3 (0.062)	2.3 (0.15)	2.9 (0.058)
Methyl tert-butyl ether	8500	9800	2	0.66 J (1.2)	ND (0.0023)	ND (0.11)	0.025 J (0.10)	0.017 J (0.15)	ND (0.32)	ND (0.12)	ND (0.29)	ND (0.12)
Toluene	10000	10000	100	16 (0.6)	0.0021 (0.0012)	0.091 (0.054)	NA	NA	0.5 (0.16)	ND (0.062)	0.15 (0.15)	0.83 (0.058)
1,2,4-Trimethylbenzene	4700	5400	300	160 (1.2)	0.0032 (0.0023)	2.5 (0.11)	0.0011 J (0.0022)	0.033 J (0.15)	25 (0.32)	48 (0.62)	56 (0.59)	12 (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	59 (1.2)	0.00044 J (0.0023)	6.8 (0.11)	0.00058 J (0.0022)	ND (0.15)	8.1 (0.32)	0.061 J (0.12)	15 (0.29)	4.3 (0.12)
Xylenes (total)	7900	9100	1000	308 J (1.2)	0.0116 J (0.0023)	0.75 J (0.11)	NA	NA	20.7 J (0.32)	ND (0.12)	1.95 J (0.29)	18.9 J (0.12)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	0.029 J (0.04)	0.03 J (0.083)	0.027 (0.0081)	0.0051 J (0.041)
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	ND (0.04)	0.01 J (0.083)	0.0046 J (0.0081)	ND (0.041)
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	ND (0.04)	ND (0.083)	0.0015 J (0.0081)	ND (0.041)
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	ND (0.04)	ND (0.083)	0.0023 J (0.0081)	ND (0.041)
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	ND (0.04)	ND (0.083)	0.0014 J (0.0081)	ND (0.041)
Chrysene	760	190000	230	NA	NA	NA	NA	NA	ND (0.04)	0.007 J (0.083)	0.0028 J (0.0081)	ND (0.041)
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	0.13 (0.04)	0.1 (0.083)	0.056 (0.0081)	0.024 J (0.041)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	<u>45 (2.4)</u>	0.0062 (0.0046)	0.56 (0.21)	ND (0.18)	ND (0.2)	1.4 (0.04)	4.4 (0.083)	0.42 (0.0081)	1.4 (0.041)
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	0.2 (0.04)	0.14 (0.083)	0.11 B (0.0081)	0.033 JB (0.041)
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	0.0086 JB (0.04)	0.027 JB (0.083)	0.014 B (0.0081)	ND (0.041)
Metals												
Lead	1000	190000	450	55.8 (12.1)	120 (2.47)	20.7 (2.38)	330 (2.14)	32.6 (2.4)	6.54 (2.41)	15.6 (2.43)	7.65 (2.46)	6.66 (2.42)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-28-05	PB-28-06	PB-28-07	PB-28-08	PB-28-09	PB-28-10	PB-28-11	PB-28-12	PB-28-13			
Field Sample ID	PB-28-05-SS01	PB-28-06-SS01	PB-28-07-SS01	PB-28-08-SS01	PB-28-09-SS01	PB-28-10-SS01	PB-28-11-SS01	PB-28-12-SS01	PB-28-13-SS01			
Collection Depth (ft bgs)	3 - 3.5	4 - 4.5	4 - 4.5	3 - 3.5	3 - 3.5	3.5 - 4	3 - 3.5	3 - 3.5	3 - 3.5			
Sample Date	2/8/2022	6/8/2021	6/9/2021	2/8/2022	2/9/2022	2/9/2022	6/9/2021	6/9/2021	2/9/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>3.2 (0.16)</u>	0.34 (0.16)	ND (0.12)	<u>1.3 (0.033)</u>	<u>1.1 (0.03)</u>	<u>1.4 (0.066)</u>	0.0017 (0.00044)	ND (0.00046)	0.03 J (0.067)
Cumene	10000	10000	2500	3.4 (0.31)	2.1 (0.31)	7.6 (0.24)	0.024 J (0.067)	0.14 (0.06)	2.2 (0.13)	0.00037 J (0.00089)	0.00018 J (0.00093)	1.2 (0.13)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.033)	ND (0.03)	ND (0.066)	ND (0.00044)	ND (0.00046)	ND (0.067)
1,2-Dichloroethane	85	98	0.5	ND (0.31)	ND (0.31)	ND (0.24)	ND (0.067)	ND (0.06)	ND (0.13)	ND (0.00089)	ND (0.00093)	ND (0.13)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	15 (0.31)	0.41 (0.31)	6.9 (0.24)	0.45 (0.067)	0.26 (0.06)	5.3 (0.13)	0.0052 (0.00089)	ND (0.00093)	2.6 (0.13)
Methyl tert-butyl ether	8500	9800	2	0.23 J (0.62)	ND (0.63)	ND (0.47)	0.49 (0.13)	0.76 (0.12)	ND (0.26)	ND (0.0018)	ND (0.0018)	ND (0.27)
Toluene	10000	10000	100	2.1 (0.31)	0.18 J (0.31)	ND (0.24)	0.54 (0.067)	0.034 J (0.06)	0.37 (0.13)	0.049 (0.00089)	ND (0.00093)	ND (0.13)
1,2,4-Trimethylbenzene	4700	5400	300	46 (0.62)	55 (0.63)	70 (0.47)	0.77 (0.13)	0.097 J (0.12)	4.9 (0.26)	0.0028 (0.0018)	ND (0.0018)	3.7 (0.27)
1,3,5-Trimethylbenzene	4700	5400	93	19 (0.62)	18 (0.63)	7.7 (0.47)	0.25 (0.13)	0.036 J (0.12)	0.77 (0.26)	0.00093 J (0.0018)	ND (0.0018)	1.2 (0.27)
Xylenes (total)	7900	9100	1000	37 J (0.62)	5.73 J (0.63)	1.992 J (0.47)	2.3 J (0.13)	0.228 J (0.12)	5.39 J (0.26)	0.0269 J (0.0018)	ND (0.0018)	0.189 J (0.27)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	0.11 J (0.12)	0.034 (0.0082)	ND (0.32)	ND (0.12)	ND (0.12)	0.086 J (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)
Benzo(a)anthracene	130	190000	340	0.13 (0.12)	0.0068 J (0.0082)	0.03 J (0.32)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)
Benzo(a)pyrene	91	190000	46	0.12 J (0.16)	0.0019 J (0.0082)	ND (0.32)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.0078)	ND (0.0082)	ND (0.17)
Benzo(b)fluoranthene	76	190000	170	0.16 (0.12)	0.0028 J (0.0082)	ND (0.32)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	0.087 J (0.16)	0.0013 J (0.0082)	ND (0.32)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.0078)	ND (0.0082)	ND (0.17)
Chrysene	760	190000	230	0.13 (0.12)	0.0084 (0.0082)	0.045 J (0.32)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)
Fluorene	130000	190000	3800	0.26 (0.21)	0.24 (0.0082)	0.64 (0.32)	ND (0.2)	ND (0.2)	0.45 (0.2)	0.0013 J (0.0078)	ND (0.0082)	0.19 J (0.21)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	11 (1)	0.14 (0.0082)	21 (0.32)	0.12 J (0.2)	ND (0.2)	0.19 J (0.2)	0.0015 J (0.0078)	ND (0.0082)	2.6 (0.21)
Phenanthrene	190000	190000	10000	0.63 (0.12)	0.31 (0.0082)	0.92 (0.32)	ND (0.12)	ND (0.12)	0.74 (0.12)	ND (0.0078)	ND (0.0082)	0.27 (0.12)
Pyrene	96000	190000	2200	0.23 (0.12)	0.03 B (0.0082)	0.12 J (0.32)	ND (0.12)	ND (0.12)	0.03 J (0.12)	ND (0.0078)	ND (0.0082)	0.023 J (0.12)
Metals												
Lead	1000	190000	450	<u>461 (12.3)</u>	7.45 (2.46)	10.9 (2.36)	8.67 (2.39)	8.5 (2.31)	5.65 (2.33)	9.22 (2.4)	8.7 (2.42)	7.82 (2.37)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-28-14	PB-28-15	PB-28-16	PB-28-16	PB-28-17	PB-28-18	PB-28-19	PB-28-19R	PB-28-19R			
Field Sample ID	PB-28-14-SS01	PB-28-15-SS01	PB-28-16-SS01	DUP-04	PB-28-17-SS01	PB-28-18-SS01	PB-28-19-SS01	PB-28-19R-6.0-6.5	PB-28-19R-14.0-14.5			
Collection Depth (ft bgs)	4 - 4.5	3 - 3.5	3 - 3.5	3 - 3.5	2 - 2.5	1.5 - 2	3 - 3.5	6 - 6.5	14 - 14.5			
Sample Date	2/9/2022	6/9/2021	6/9/2021	6/9/2021	6/9/2021	6/9/2021	6/8/2021	2/9/2022	2/9/2022			
Comments				FD								
Volatile Organic Compounds												
Benzene	280	330	0.5	0.2 (0.00063)	0.0027 (0.00048)	0.00018 J (0.00051)	ND (0.00051)	0.0041 (0.00059)	0.003 (0.00088)	<u>74 (1.7)</u>	<u>24 (1.6)</u>	<u>51 (0.32)</u>
Cumene	10000	10000	2500	0.012 (0.0012)	0.006 (0.00097)	0.014 (0.001)	0.016 (0.001)	0.0012 (0.0012)	0.00023 J (0.0018)	41 (3.4)	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00063)	ND (0.00048)	ND (0.00051)	ND (0.00051)	ND (0.00059)	ND (0.00088)	ND (1.7)	NA	NA
1,2-Dichloroethane	85	98	0.5	ND (0.0012)	ND (0.00097)	ND (0.001)	ND (0.001)	ND (0.0012)	ND (0.0018)	ND (3.4)	NA	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.02 (0.0012)	0.00052 J (0.00097)	ND (0.001)	ND (0.001)	0.00052 J (0.0012)	ND (0.0018)	<u>700 (3.4)</u>	<u>120 (3.2)</u>	<u>95 (0.65)</u>
Methyl tert-butyl ether	8500	9800	2	0.00047 J (0.0025)	0.0018 J (0.0019)	ND (0.002)	ND (0.002)	ND (0.0023)	0.00044 J (0.0035)	ND (6.9)	NA	NA
Toluene	10000	10000	100	0.0041 (0.0012)	0.0041 (0.00097)	ND (0.001)	0.00067 J (0.001)	ND (0.0012)	0.0017 J (0.0018)	<u>2000 (14)</u>	<u>510 (3.2)</u>	9.9 (0.65)
1,2,4-Trimethylbenzene	4700	5400	300	0.048 (0.0025)	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0023)	0.0012 J (0.0035)	<u>870 (27)</u>	240 (6.3)	NA
1,3,5-Trimethylbenzene	4700	5400	93	0.019 (0.0025)	0.00028 J (0.0019)	ND (0.002)	ND (0.002)	0.0018 J (0.0023)	0.0011 J (0.0035)	<u>400 (6.9)</u>	79 (6.3)	NA
Xylenes (total)	7900	9100	1000	0.0282 J (0.0025)	0.00098 J (0.0019)	0.00164 J (0.002)	0.00174 J (0.002)	ND (0.0023)	0.0054 J (0.0035)	<u>3290 J (27)</u>	750 J (6.3)	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	ND (0.12)	ND (0.0083)	ND (0.0083)	0.02 (0.0081)	0.11 (0.039)	0.0036 J (0.0084)	0.0076 J (0.08)	NA	NA
Benzo(a)anthracene	130	190000	340	ND (0.12)	ND (0.0083)	0.00099 J (0.0083)	0.0011 J (0.0081)	0.61 (0.039)	0.021 (0.0084)	ND (0.08)	NA	NA
Benzo(a)pyrene	91	190000	46	ND (0.16)	ND (0.0083)	ND (0.0083)	ND (0.0081)	0.82 (0.039)	0.029 (0.0084)	ND (0.08)	NA	NA
Benzo(b)fluoranthene	76	190000	170	ND (0.12)	ND (0.0083)	ND (0.0083)	0.00081 J (0.0081)	0.95 (0.039)	0.031 (0.0084)	ND (0.08)	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	ND (0.16)	ND (0.0083)	ND (0.0083)	ND (0.0081)	0.46 (0.039)	0.027 (0.0084)	ND (0.08)	NA	NA
Chrysene	760	190000	230	ND (0.12)	ND (0.0083)	0.0011 J (0.0083)	0.00061 J (0.0081)	0.53 (0.039)	0.017 (0.0084)	ND (0.08)	NA	NA
Fluorene	130000	190000	3800	ND (0.21)	0.0011 J (0.0083)	0.28 (0.0083)	0.13 (0.0081)	0.04 (0.039)	ND (0.0084)	0.054 J (0.08)	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.21)	0.0018 J (0.0083)	0.042 (0.0083)	0.0095 (0.0081)	0.078 (0.039)	0.024 (0.0084)	4.9 (0.08)	NA	NA
Phenanthrene	190000	190000	10000	ND (0.12)	0.0024 J (0.0083)	0.32 (0.0083)	0.16 (0.0081)	0.36 (0.039)	0.016 (0.0084)	0.062 JB (0.08)	NA	NA
Pyrene	96000	190000	2200	ND (0.12)	ND (0.0083)	0.0087 (0.0083)	0.0045 J (0.0081)	0.62 (0.039)	0.019 (0.0084)	0.015 JB (0.08)	NA	NA
Metals												
Lead	1000	190000	450	35.5 (2.41)	6.85 (2.43)	7.88 (2.41)	7.15 (2.37)	19 (2.25)	313 (2.43)	7.29 (2.46)	NA	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-28-20	PB-28-21	PB-28-22	PB-29-01	PB-29-02R	PB-29-02	PB-29-02R	PB-29-03	PB-29-03R
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-28-20-SS01	PB-28-21-SS01	PB-28-22-SS01	PB-29-01-SS01	PB-29-02R-0.0-0.5	PB-29-02-SS01	PB-29-02R-6.0-6.5	PB-29-03-SS01	PB-29-03R-6.0-6.5
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	4.5 - 5	3.5 - 4	4.5 - 5	3 - 3.5	0 - 0.5	4.5 - 5	6 - 6.5	4.5 - 5	6 - 6.5
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	6/9/2021	6/9/2021	6/9/2021	6/9/2021	2/7/2022	6/9/2021	2/7/2022	6/9/2021	2/7/2022
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	0.36 (0.032)	ND (0.00053)	ND (0.031)	<u>3.5 (0.029)</u>	NA	<u>8.6 (0.28)</u>	NA	<u>93 (0.61)</u>	<u>110 (0.65)</u>
Cumene	10000	10000	2500	1.6 (0.064)	1.3 (0.06)	1.8 (0.063)	1.1 (0.059)	NA	4.5 (0.56)	NA	19 (1.2)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.032)	ND (0.00053)	ND (0.031)	ND (0.029)	NA	ND (0.28)	NA	ND (0.61)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.064)	ND (0.0011)	ND (0.063)	ND (0.059)	NA	ND (0.56)	NA	ND (1.2)	NA
Ethanol				NA	NA	NA	NA		NA	NA	NA	NA
Ethyl Benzene	880	1000	70	1.7 (0.064)	0.017 J (0.06)	0.015 J (0.063)	14 (0.059)	NA	62 (0.56)	NA	<u>220 (1.2)</u>	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.13)	ND (0.0021)	ND (0.12)	0.056 J (0.12)	NA	0.37 J (1.1)	NA	<u>22 (2.4)</u>	<u>4.6 (2.6)</u>
Toluene	10000	10000	100	0.04 J (0.064)	ND (0.0011)	ND (0.063)	0.28 (0.059)	NA	<u>110 (0.56)</u>	NA	<u>540 (3)</u>	<u>200 (1.3)</u>
1,2,4-Trimethylbenzene	4700	5400	300	4.8 (0.13)	ND (0.0021)	ND (0.12)	32 (0.24)	NA	190 (2.2)	NA	<u>500 (6.1)</u>	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.13)	ND (0.0021)	ND (0.12)	9.6 (0.12)	NA	60 (1.1)	NA	<u>170 (2.4)</u>	NA
Xylenes (total)	7900	9100	1000	0.46 J (0.13)	0.00149 J (0.0021)	0.1175 J (0.12)	32.97 J (0.12)	NA	380 J (1.1)	NA	<u>1150 J (6.1)</u>	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	ND (0.04)	ND (0.0081)	0.0012 J (0.0081)	0.015 J (0.08)	NA	0.083 J (0.41)	NA	0.047 J (0.39)	NA
Benzo(a)anthracene	130	190000	340	0.0064 J (0.04)	0.0023 J (0.0081)	0.0019 J (0.0081)	0.024 J (0.08)	NA	0.068 J (0.41)	NA	0.063 J (0.39)	NA
Benzo(a)pyrene	91	190000	46	ND (0.04)	0.0011 J (0.0081)	ND (0.0081)	0.013 J (0.08)	NA	ND (0.41)	NA	ND (0.39)	NA
Benzo(b)fluoranthene	76	190000	170	ND (0.04)	0.0014 J (0.0081)	0.0011 J (0.0081)	0.017 J (0.08)	NA	ND (0.41)	NA	0.041 J (0.39)	NA
Benzo(g,h,i)perylene	190000	190000	180	ND (0.04)	ND (0.0081)	ND (0.0081)	ND (0.08)	NA	0.056 J (0.41)	NA	ND (0.39)	NA
Chrysene	760	190000	230	0.0042 J (0.04)	0.0033 J (0.0081)	0.0015 J (0.0081)	0.013 J (0.08)	NA	0.048 J (0.41)	NA	0.036 J (0.39)	NA
Fluorene	130000	190000	3800	2 (0.04)	0.47 (0.0081)	0.0038 J (0.0081)	0.022 J (0.08)	NA	0.36 J (0.41)	NA	0.12 J (0.39)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.34 (0.04)	0.16 (0.0081)	0.13 (0.0081)	3.6 (0.08)	NA	<u>41 (0.41)</u>	NA	<u>27 (0.39)</u>	NA
Phenanthrene	190000	190000	10000	3 (0.04)	0.36 (0.0081)	0.0051 J (0.0081)	0.062 J (0.08)	NA	0.49 (0.41)	NA	0.24 J (0.39)	NA
Pyrene	96000	190000	2200	0.098 (0.04)	0.018 (0.0081)	0.0032 J (0.0081)	0.038 J (0.08)	NA	0.19 J (0.41)	NA	0.12 J (0.39)	NA
Metals												
Lead	1000	190000	450	9.59 (2.33)	6.9 (2.35)	9.34 (2.37)	6.55 (2.4)	2500 (2.34)	<u>1180 (2.4)</u>	9.53 J (12.2)	7.53 (2.39)	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-29-03R	PB-29-04	PB-29-05	PB-29-06	PB-29-07	PB-29-08	PB-29-08R	PB-29-09	PB-29-10			
Field Sample ID	PB-29-03R-14.0-14.5	PB-29-04-SS01	PB-29-05-SS01	PB-29-06-SS01	PB-29-07-SS01	PB-29-08-SS01	PB-29-08R-6.0-6.5	PB-29-09-SS01	PB-29-10-SS01			
Collection Depth (ft bgs)	14 - 14.5	4.5 - 5	4.5 - 5	3 - 3.5	3 - 3.5	1 - 1.5	6 - 6.5	4.5 - 5	1 - 1.5			
Sample Date	2/7/2022	6/9/2021	6/9/2021	6/9/2021	6/9/2021	6/9/2021	2/8/2022	6/9/2021	6/9/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>3 (0.026)</u>	<u>1.1 (0.028)</u>	<u>8.9 (0.58)</u>	<u>5.5 (0.06)</u>	<u>12 (0.03)</u>	<u>22 (0.91)</u>	NA	0.1 J (0.31)	<u>24 (0.12)</u>
Cumene	10000	10000	2500	NA	1.8 (0.056)	17 (1.2)	1.3 (0.12)	3 (0.06)	30 (1.8)	NA	18 (0.62)	8.5 (0.24)
1,2-Dibromoethane	3.7	4.2	0.005	NA	ND (0.028)	ND (0.58)	ND (0.06)	ND (0.03)	ND (0.91)	NA	ND (0.31)	ND (0.12)
1,2-Dichloroethane	85	98	0.5	NA	ND (0.056)	ND (1.2)	ND (0.12)	ND (0.06)	ND (1.8)	NA	ND (0.62)	ND (0.24)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	14 (0.056)	<u>190 (1.2)</u>	19 (0.12)	10 (0.06)	<u>290 (1.8)</u>	0.21 (0.0012)	<u>150 (0.62)</u>	<u>77 (0.6)</u>
Methyl tert-butyl ether	8500	9800	2	0.46 (0.10)	0.015 J (0.11)	ND (2.3)	0.042 J (0.24)	<u>2.2 (0.12)</u>	ND (3.6)	NA	ND (1.2)	ND (0.48)
Toluene	10000	10000	100	0.11 (0.051)	0.39 (0.056)	0.67 J (1.2)	37 (0.24)	7.7 (0.06)	5 (1.8)	NA	0.78 (0.62)	1.5 (0.24)
1,2,4-Trimethylbenzene	4700	5400	300	NA	19 (0.45)	<u>540 (5.8)</u>	37 (0.48)	24 (0.48)	<u>680 (7.3)</u>	0.0071 (0.0025)	<u>320 (4.9)</u>	82 (1.2)
1,3,5-Trimethylbenzene	4700	5400	93	NA	6.4 (0.11)	<u>110 (2.3)</u>	13 (0.24)	7.9 (0.12)	<u>260 (3.6)</u>	0.019 (0.0025)	<u>110 (1.2)</u>	26 (0.48)
Xylenes (total)	7900	9100	1000	NA	83 J (0.45)	405.1 J (2.3)	100 J (0.48)	46 J (0.12)	<u>1550 J (7.3)</u>	0.0455 J (0.0025)	800 J (4.9)	182.8 J (1.2)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	NA	ND (0.041)	0.06 J (0.31)	0.0081 J (0.041)	0.014 J (0.04)	0.2 J (2.1)	NA	ND (0.38)	0.029 J (0.16)
Benzo(a)anthracene	130	190000	340	NA	0.0066 J (0.041)	0.077 J (0.31)	0.0086 J (0.041)	0.014 J (0.04)	0.25 J (2.1)	NA	ND (0.38)	0.034 J (0.16)
Benzo(a)pyrene	91	190000	46	NA	ND (0.041)	0.072 J (0.31)	0.0049 J (0.041)	0.0083 J (0.04)	ND (2.1)	NA	ND (0.38)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	NA	0.0051 J (0.041)	0.087 J (0.31)	0.0063 J (0.041)	0.0099 J (0.04)	ND (2.1)	NA	ND (0.38)	0.018 J (0.16)
Benzo(g,h,i)perylene	190000	190000	180	NA	ND (0.041)	0.083 J (0.31)	0.0035 J (0.041)	0.0038 J (0.04)	ND (2.1)	NA	ND (0.38)	ND (0.16)
Chrysene	760	190000	230	NA	0.0031 J (0.041)	0.054 J (0.31)	0.0049 J (0.041)	0.01 J (0.04)	ND (2.1)	NA	ND (0.38)	0.018 J (0.16)
Fluorene	130000	190000	3800	NA	0.0076 J (0.041)	0.2 J (0.31)	0.017 J (0.041)	0.018 J (0.04)	0.72 J (2.1)	NA	0.075 J (0.38)	0.084 J (0.16)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	4.1 (0.041)	24 (0.31)	2.4 (0.041)	2.5 (0.04)	<u>79 (2.1)</u>	0.032 J (0.21)	25 (0.38)	16 (0.16)
Phenanthrene	190000	190000	10000	NA	0.012 J (0.041)	0.35 (0.31)	0.032 J (0.041)	0.058 (0.04)	1.2 J (2.1)	NA	0.11 J (0.38)	0.14 J (0.16)
Pyrene	96000	190000	2200	NA	0.0064 J (0.041)	0.18 J (0.31)	0.015 J (0.041)	0.03 J (0.04)	0.52 J (2.1)	NA	0.048 J (0.38)	0.067 J (0.16)
Metals												
Lead	1000	190000	450	NA	8.2 (2.37)	282 (2.33)	8.52 (2.32)	8.23 (2.38)	98.7 (2.48)	NA	17.2 (2.33)	9.69 (2.3)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-29-11	PB-29-11	PB-29-12	PB-29-13	PB-29-14	PB-29-15R	PB-29-15	PB-29-15R	PB-29-16			
Field Sample ID	PB-29-11-SS01	DUP-05	PB-29-12-SS01	PB-29-13-SS01	PB-29-14-SS01	PB-29-15R-0.0-0.5	PB-29-15-SS01	PB-29-15R-6.0-6.5	PB-29-16-SS01			
Collection Depth (ft bgs)	1 - 1.5	1 - 1.5	3 - 3.5	3 - 3.5	3 - 3.5	0 - 0.5	3 - 3.5	6 - 6.5	3.5 - 4			
Sample Date	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021	2/8/2022	6/10/2021	2/8/2022	6/10/2021			
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>1.2 (0.03)</u>	<u>3.6 (0.027)</u>	<u>6.6 (0.031)</u>	<u>0.84 (0.039)</u>	ND (0.00058)	NA	0.00029 J (0.00046)	NA	<u>8.3 (0.031)</u>
Cumene	10000	10000	2500	0.17 (0.059)	0.028 J (0.054)	0.3 (0.062)	0.78 (0.078)	ND (0.0012)	NA	0.00022 J (0.00091)	NA	2.2 (0.062)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.03)	ND (0.00046)	ND (0.031)	ND (0.039)	ND (0.00058)	NA	ND (0.00046)	NA	ND (0.031)
1,2-Dichloroethane	85	98	0.5	ND (0.059)	ND (0.00092)	ND (0.062)	ND (0.078)	ND (0.0012)	NA	0.00025 J (0.00091)	NA	ND (0.062)
Ethanol						NA	NA	NA		NA	NA	NA
Ethyl Benzene	880	1000	70	1.3 (0.059)	0.52 (0.054)	0.75 (0.062)	6.3 (0.078)	ND (0.0012)	NA	ND (0.00091)	NA	14 (0.062)
Methyl tert-butyl ether	8500	9800	2	0.92 (0.12)	2 (0.11)	<u>12 (0.12)</u>	0.02 J (0.16)	ND (0.0023)	NA	ND (0.0018)	NA	ND (0.12)
Toluene	10000	10000	100	0.53 (0.059)	0.16 (0.054)	0.1 (0.062)	0.14 (0.078)	ND (0.0012)	NA	ND (0.00091)	NA	0.42 (0.062)
1,2,4-Trimethylbenzene	4700	5400	300	8.6 (0.12)	0.44 (0.11)	0.64 (0.12)	13 (0.16)	ND (0.0023)	NA	0.00033 J (0.0018)	NA	0.28 (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	2.7 (0.12)	0.16 (0.11)	0.19 (0.12)	4 (0.16)	ND (0.0023)	NA	ND (0.0018)	NA	0.28 (0.12)
Xylenes (total)	7900	9100	1000	6.4 J (0.12)	0.94 J (0.11)	1.76 J (0.12)	27.8 J (0.16)	ND (0.0023)	NA	ND (0.0018)	NA	3.89 J (0.12)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	0.014 J (0.04)	0.002 J (0.0075)	ND (0.0081)	ND (0.0084)	0.043 (0.0079)	NA	0.0013 J (0.0081)	NA	0.00088 J (0.008)
Benzo(a)anthracene	130	190000	340	0.031 J (0.04)	0.0036 J (0.0075)	0.00085 J (0.0081)	ND (0.0084)	0.17 (0.0079)	NA	0.012 (0.0081)	NA	0.0013 J (0.008)
Benzo(a)pyrene	91	190000	46	0.018 J (0.04)	0.0029 J (0.0075)	ND (0.0081)	ND (0.0084)	0.2 (0.0079)	NA	0.019 (0.0081)	NA	ND (0.008)
Benzo(b)fluoranthene	76	190000	170	0.022 J (0.04)	0.004 J (0.0075)	0.00089 J (0.0081)	ND (0.0084)	0.25 (0.0079)	NA	0.023 (0.0081)	NA	ND (0.008)
Benzo(g,h,i)perylene	190000	190000	180	0.016 J (0.04)	0.0035 J (0.0075)	ND (0.0081)	ND (0.0084)	0.12 (0.0079)	NA	0.015 (0.0081)	NA	ND (0.008)
Chrysene	760	190000	230	0.018 J (0.04)	0.0029 J (0.0075)	ND (0.0081)	ND (0.0084)	0.14 (0.0079)	NA	0.0095 (0.0081)	NA	0.00072 J (0.008)
Fluorene	130000	190000	3800	0.04 (0.04)	0.0056 J (0.0075)	ND (0.0081)	0.0013 J (0.0084)	0.016 (0.0079)	NA	ND (0.0081)	NA	0.0024 J (0.008)
Indeno(1,2,3-cd)pyrene	76	190000	18000			NA	NA	NA		NA	NA	NA
Naphthalene	66	77	25	2.6 (0.04)	0.44 (0.0075)	0.02 (0.0081)	0.16 (0.0084)	0.011 (0.0079)	NA	0.0062 J (0.0081)	NA	0.27 (0.008)
Phenanthrene	190000	190000	10000	0.073 (0.04)	0.011 (0.0075)	0.0011 J (0.0081)	0.0018 J (0.0084)	0.19 (0.0079)	NA	0.0043 J (0.0081)	NA	0.0032 J (0.008)
Pyrene	96000	190000	2200	0.044 (0.04)	0.0055 J (0.0075)	0.001 J (0.0081)	0.0008 J (0.0084)	0.22 (0.0079)	NA	0.0079 J (0.0081)	NA	0.002 J (0.008)
Metals												
Lead	1000	190000	450	5.15 (2.35)	8.85 (2.23)	7.89 (2.4)	9.68 (2.45)	84.5 (2.38)	4.57 J (11.3)	<u>2110 (2.32)</u>	4.39 (2.37)	6.72 (2.34)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-29-17	PB-29-18	PB-29-19	PB-29-20	PB-29-21	PB-29-22	PB-29-23	PB-29-24	PB-29-25			
Field Sample ID	PB-29-17-SS01	PB-29-18-SS01	PB-29-19-SS01	PB-29-20-SS01	PB-29-21-SS01	PB-29-22-SS01	PB-29-23-SS01	PB-29-24-SS01	PB-29-25-SS01			
Collection Depth (ft bgs)	4.5 - 5	4 - 4.5	4 - 4.5	1.5 - 2	4 - 4.5	4.5 - 5	3.5 - 4	4.5 - 5	4.5 - 5			
Sample Date	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/10/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.035)	0.00094 (0.00055)	<u>23 (0.16)</u>	<u>1.4 (0.022)</u>	<u>29 (0.28)</u>	<u>25 (0.16)</u>	<u>30 (0.17)</u>	<u>76 (0.32)</u>	<u>2 (0.038)</u>
Cumene	10000	10000	2500	0.026 J (0.07)	0.0006 J (0.0011)	5.9 (0.32)	0.11 (0.045)	9.9 (0.55)	7 (0.32)	7.4 (0.33)	18 (0.65)	5.2 (0.077)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.035)	ND (0.00055)	ND (0.16)	ND (0.00046)	ND (0.28)	ND (0.16)	ND (0.17)	ND (0.32)	ND (0.038)
1,2-Dichloroethane	85	98	0.5	ND (0.07)	ND (0.0011)	ND (0.32)	ND (0.00093)	ND (0.55)	ND (0.32)	ND (0.33)	ND (0.65)	ND (0.077)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.032 J (0.07)	ND (0.0011)	<u>82 (0.32)</u>	1.1 (0.045)	<u>100 (0.55)</u>	<u>72 (0.32)</u>	<u>110 (0.67)</u>	<u>220 (3.2)</u>	0.71 (0.077)
Methyl tert-butyl ether	8500	9800	2	0.014 J (0.14)	ND (0.0022)	ND (0.63)	0.57 (0.09)	ND (1.1)	ND (0.64)	ND (0.67)	ND (1.3)	ND (0.15)
Toluene	10000	10000	100	ND (0.07)	ND (0.0011)	22 (0.32)	0.088 (0.045)	<u>150 (0.55)</u>	3.6 (0.32)	58 (0.33)	6.3 (0.65)	0.49 (0.077)
1,2,4-Trimethylbenzene	4700	5400	300	0.025 J (0.14)	ND (0.0022)	190 (2.5)	2.6 (0.09)	210 (5.5)	140 (1.3)	190 (1.3)	<u>380 (6.5)</u>	0.63 (0.15)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.14)	ND (0.0022)	66 (0.63)	0.7 (0.09)	79 (1.1)	50 (0.64)	70 (0.67)	<u>150 (1.3)</u>	0.11 J (0.15)
Xylenes (total)	7900	9100	1000	ND (0.14)	ND (0.0022)	383 J (2.5)	0.924 J (0.09)	460 J (5.5)	312 J (1.3)	450 J (1.3)	830 J (6.5)	0.86 J (0.15)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	0.0026 J (0.0084)	0.017 J (0.038)	ND (0.0084)	0.0038 J (0.015)	0.016 J (0.16)	ND (0.041)	0.0014 J (0.017)	0.0022 J (0.016)	0.0043 J (0.0082)
Benzo(a)anthracene	130	190000	340	0.029 (0.0084)	0.076 (0.038)	0.0016 J (0.0084)	0.011 J (0.015)	0.046 J (0.16)	ND (0.041)	0.0037 J (0.017)	0.0077 J (0.016)	0.0082 (0.0082)
Benzo(a)pyrene	91	190000	46	0.05 (0.0084)	0.2 (0.038)	ND (0.0084)	0.01 J (0.015)	ND (0.16)	ND (0.041)	ND (0.017)	0.0049 J (0.016)	0.0071 J (0.0082)
Benzo(b)fluoranthene	76	190000	170	0.061 (0.0084)	0.28 (0.038)	ND (0.0084)	0.011 J (0.015)	ND (0.16)	ND (0.041)	ND (0.017)	0.0074 J (0.016)	0.0095 (0.0082)
Benzo(g,h,i)perylene	190000	190000	180	0.041 (0.0084)	0.22 (0.038)	ND (0.0084)	0.013 J (0.015)	ND (0.16)	ND (0.041)	ND (0.017)	0.004 J (0.016)	0.0072 J (0.0082)
Chrysene	760	190000	230	0.019 (0.0084)	0.08 (0.038)	ND (0.0084)	0.0056 J (0.015)	ND (0.16)	ND (0.041)	ND (0.017)	0.0052 J (0.016)	0.007 J (0.0082)
Fluorene	130000	190000	3800	ND (0.0084)	ND (0.038)	0.0021 J (0.0084)	0.0084 J (0.015)	0.064 J (0.16)	ND (0.041)	0.0056 J (0.017)	0.0074 J (0.016)	0.014 (0.0082)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.0027 J (0.0084)	0.012 J (0.038)	0.38 (0.0084)	0.9 (0.015)	13 (0.16)	1.6 (0.041)	1.3 (0.017)	1 (0.016)	0.21 (0.0082)
Phenanthrene	190000	190000	10000	0.0064 J (0.0084)	0.044 (0.038)	0.0037 J (0.0084)	0.018 (0.015)	0.098 J (0.16)	0.011 J (0.041)	0.0074 J (0.017)	0.011 J (0.016)	0.02 (0.0082)
Pyrene	96000	190000	2200	0.013 (0.0084)	0.076 (0.038)	0.0012 J (0.0084)	0.011 J (0.015)	0.044 J (0.16)	0.0069 J (0.041)	0.003 J (0.017)	0.0056 J (0.016)	0.014 (0.0082)
Metals												
Lead	1000	190000	450	105 (2.49)	96.2 (2.28)	10.8 (2.4)	37.3 (2.18)	11.9 (2.29)	10.7 (2.33)	7.46 (2.53)	18 (2.39)	63.6 (2.42)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-29-26R	PB-29-26	PB-29-27	PB-29-28	PB-29-28	PB-29-28	PB-33-01	PB-33-02	PB-33-03			
Field Sample ID	PB-29-26R-0.0-0.5	PB-29-26-SS01	PB-29-27-SS01	PB-29-28-0.0-0.5	PB-29-28-6.0-6.5	PB-29-28-14.0-14.5	PB-33-01-SS01	PB-33-02-SS01	PB-33-03-SS01			
Collection Depth (ft bgs)	0 - 0.5	4.5 - 5	4 - 4.5	0 - 0.5	6 - 6.5	14 - 14.5	4.5 - 5	3 - 3.5	2 - 2.5			
Sample Date	2/8/2022	6/10/2021	6/10/2021	2/8/2022	2/8/2022	2/8/2022	6/10/2021	6/10/2021	6/10/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	<u>11 (0.037)</u>	ND (0.033)	0.0027 (0.00073)	<u>7 (0.035)</u>	<u>6 (0.032)</u>	<u>1.2 (0.061)</u>	<u>6.6 (0.062)</u>	0.038 (0.034)
Cumene	10000	10000	2500	NA	5.1 (0.074)	1.8 (0.066)	NA	NA	NA	2.6 (0.12)	2.7 (0.12)	1.6 (0.069)
1,2-Dibromoethane	3.7	4.2	0.005	NA	ND (0.037)	ND (0.033)	NA	NA	NA	ND (0.061)	ND (0.062)	ND (0.034)
1,2-Dichloroethane	85	98	0.5	NA	ND (0.074)	ND (0.066)	NA	NA	NA	ND (0.12)	ND (0.12)	ND (0.069)
Ethanol					NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	1.6 (0.074)	0.012 J (0.066)	NA	NA	NA	0.17 (0.12)	29 (0.12)	0.22 (0.069)
Methyl tert-butyl ether	8500	9800	2	NA	0.43 (0.15)	ND (0.13)	NA	NA	NA	0.093 J (0.24)	ND (0.25)	0.018 J (0.14)
Toluene	10000	10000	100	NA	1.5 (0.074)	ND (0.066)	0.0015 (0.0015)	8.1 (0.07)	NA	ND (0.12)	0.53 (0.12)	ND (0.069)
1,2,4-Trimethylbenzene	4700	5400	300	NA	2.1 (0.15)	1.7 (0.13)	NA	NA	NA	0.061 J (0.24)	51 (1.2)	5.7 (0.14)
1,3,5-Trimethylbenzene	4700	5400	93	NA	0.52 (0.15)	0.68 (0.13)	NA	NA	NA	ND (0.24)	16 (0.25)	2.2 (0.14)
Xylenes (total)	7900	9100	1000	NA	10.7 J (0.15)	0.072 J (0.13)	NA	NA	NA	0.26 J (0.24)	71.7 J (0.25)	1.12 J (0.14)
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	NA	0.044 (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	NA	0.0092 (0.0083)	0.00082 J (0.0082)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	NA	0.0043 J (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	NA	0.0064 J (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	0.002 J (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	NA	0.0079 J (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	NA	0.088 (0.0083)	0.002 J (0.0082)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.026 J (0.18)	0.12 (0.0083)	0.012 (0.0082)	ND (0.0059)	2.3 (0.28)	NA	0.34 J (0.49)	7 (0.49)	0.28 (0.28)
Phenanthrene	190000	190000	10000	NA	0.18 (0.0083)	0.0022 J (0.0082)	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	NA	0.028 (0.0083)	ND (0.0082)	NA	NA	NA	NA	NA	NA
Metals												
Lead	1000	190000	450	274 (2.06)	6.93 (2.4)	7.15 (2.4)	92.3 (11.9)	NA	NA	5.89 (2.42)	9.41 (2.44)	6.57 (2.56)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-33-04	PB-33-05	PB-33-05	PB-33-05R	PB-33-05R	PB-33-06	PB-33-07	PB-33-08	PB-33-09
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-33-04-SS01	PB-33-05-SS01	DUP-06	PB-33-05R-6.0-6.5	PB-33-05R-14.0-14.5	PB-33-06-SS01	PB-33-07-SS01	PB-33-08-SS01	PB-33-09-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	1 - 1.5	2 - 2.5	2 - 2.5	6 - 6.5	14 - 14.5	1 - 1.5	3 - 3.5	3 - 3.5	4 - 4.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer TDS≤2500	6/10/2021	6/11/2021	6/11/2021	2/7/2022	2/7/2022	6/11/2021	6/11/2021	6/11/2021	6/11/2021
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>12 (0.14)</u>	<u>46 (0.16)</u>	<u>30 (0.14)</u>	<u>5.2 (0.053)</u>	<u>6.6 (0.06)</u>	ND (0.026)	0.14 (0.00045)	0.15 (0.026)	<u>7.9 (0.13)</u>
Cumene	10000	10000	2500	13 (0.28)	12 (0.32)	7.7 (0.27)	NA	NA	0.31 (0.051)	0.01 (0.0009)	2.7 (0.052)	6.6 (0.27)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.14)	ND (0.16)	ND (0.14)	NA	NA	ND (0.026)	ND (0.00045)	ND (0.026)	ND (0.13)
1,2-Dichloroethane	85	98	0.5	ND (0.28)	ND (0.32)	ND (0.27)	NA	NA	ND (0.051)	ND (0.0009)	ND (0.052)	ND (0.27)
Ethanol					NA	NA	NA	NA		NA	NA	NA
Ethyl Benzene	880	1000	70	<u>91 (0.57)</u>	<u>83 (0.32)</u>	55 (0.27)	21 (0.11)	NA	ND (0.051)	0.056 (0.0009)	0.56 (0.052)	53 (0.27)
Methyl tert-butyl ether	8500	9800	2	ND (0.57)	0.53 J (0.63)	0.39 J (0.54)	NA	NA	ND (0.1)	0.0074 (0.0018)	ND (0.1)	ND (0.53)
Toluene	10000	10000	100	0.52 (0.28)	<u>180 (1.3)</u>	<u>150 (1.4)</u>	0.19 (0.11)	NA	ND (0.051)	ND (0.0009)	ND (0.052)	2.7 (0.27)
1,2,4-Trimethylbenzene	4700	5400	300	130 (1.1)	180 (2.5)	150 (2.7)	NA	NA	ND (0.1)	0.0018 (0.0018)	0.044 J (0.1)	67 (0.53)
1,3,5-Trimethylbenzene	4700	5400	93	43 (0.57)	53 (0.63)	36 (0.54)	NA	NA	ND (0.1)	0.01 (0.0018)	ND (0.1)	26 (0.53)
Xylenes (total)	7900	9100	1000	329 J (1.1)	410 J (2.5)	310 J (2.7)	NA	NA	ND (0.1)	0.06045 J (0.0018)	0.08 J (0.1)	208.3 J (1.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000		NA	NA	NA	NA		NA	NA	NA
Naphthalene	66	77	25	8.6 (1.1)	15 (1.3)	9.8 (1.1)	NA	NA	0.078 J (0.2)	0.0019 J (0.0036)	0.14 J (0.21)	7.4 (1.1)
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	13 (2.3)	13 (2.37)	8.92 (2.36)	NA	NA	6.69 (2.29)	8.06 (2.21)	8.52 (2.22)	10.2 (2.33)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1

Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-33-10	PB-33-11	PB-33-12	PB-33-13	PB-33-14	PB-33-15	PB-33-16	PB-33-17	PB-33-18
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-33-10-SS01	PB-33-11-SS01	PB-33-12-SS01	PB-33-13-SS01	PB-33-14-SS01	PB-33-15-SS01	PB-33-16-SS01	PB-33-17-SS01	PB-33-18-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	4 - 4.5	2.5 - 3	0.5 - 1	3 - 3.5	4 - 4.5	3 - 3.5	1.5 - 2	3.5 - 4
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer TDS≤2500	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.028)	<u>12 (0.028)</u>	<u>2.7 (0.027)</u>	0.00053 (0.00043)	0.0011 (0.00047)	ND (0.0005)	0.13 (0.034)	ND (0.00045)	<u>18 (0.27)</u>
Cumene	10000	10000	2500	0.015 J (0.056)	1.6 (0.055)	0.67 (0.053)	0.0069 (0.00086)	0.086 (0.00095)	0.016 (0.001)	0.1 (0.068)	0.00042 J (0.0009)	8.5 (0.54)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.028)	ND (0.028)	ND (0.027)	ND (0.00043)	ND (0.00047)	ND (0.0005)	ND (0.034)	ND (0.00045)	ND (0.27)
1,2-Dichloroethane	85	98	0.5	ND (0.056)	ND (0.055)	ND (0.053)	ND (0.00086)	ND (0.00095)	ND (0.001)	ND (0.068)	ND (0.0009)	ND (0.54)
Ethanol				NA	NA	NA		NA	NA	NA		NA
Ethyl Benzene	880	1000	70	ND (0.056)	3.6 (0.055)	2.4 (0.053)	0.00021 J (0.00086)	0.00019 J (0.00095)	0.0055 (0.001)	0.028 J (0.068)	ND (0.0009)	7.2 (0.54)
Methyl tert-butyl ether	8500	9800	2	ND (0.11)	<u>2.6 (0.11)</u>	0.56 (0.11)	0.0023 (0.0017)	0.00066 J (0.0019)	ND (0.002)	ND (0.14)	0.00041 J (0.0018)	ND (1.1)
Toluene	10000	10000	100	ND (0.056)	7 (0.055)	0.036 J (0.053)	ND (0.00086)	0.00084 J (0.00095)	0.00083 J (0.001)	ND (0.068)	ND (0.0009)	ND (0.54)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.11)	34 (0.55)	4.9 (0.11)	ND (0.0017)	ND (0.0019)	0.015 (0.002)	ND (0.14)	ND (0.0018)	29 (1.1)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.11)	12 (0.11)	1.6 (0.11)	ND (0.0017)	0.00029 J (0.0019)	0.0048 (0.002)	0.021 J (0.14)	ND (0.0018)	1.7 (1.1)
Xylenes (total)	7900	9100	1000	ND (0.11)	22.5 J (0.11)	1.936 J (0.11)	ND (0.0017)	0.00168 J (0.0019)	0.0235 J (0.002)	0.099 J (0.14)	ND (0.0018)	2.37 J (1.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.056 J (0.22)	4.3 (0.22)	0.72 (0.21)	0.0007 J (0.0034)	0.01 (0.0038)	0.0043 (0.004)	0.047 J (0.27)	ND (0.0036)	8 (2.2)
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	13 (2.25)	7.51 (2.36)	9.05 (2.28)	6.33 (2.31)	8.41 (2.41)	10 (2.31)	46.7 (2.18)	10 (2.18)	9.81 (2.32)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-33-19	PB-33-20	PB-33-21	PB-33-22	PB-33-23	PB-34-01	PB-34-02	PB-34-03R	PB-34-03			
Field Sample ID	PB-33-19-SS01	PB-33-20-SS01	PB-33-21-SS01	PB-33-22-SS01	PB-33-23-SS01	PB-34-01-SS01	PB-34-02-SS01	PB-34-03R-0.0-0.5	PB-34-03-SS01			
Collection Depth (ft bgs)	1.5 - 2	3 - 3.5	4.5 - 5	2.5 - 3	4.5 - 5	3.5 - 4	4 - 4.5	0 - 0.5	2 - 2.5			
Sample Date	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/21/2021	6/21/2021	2/11/2022	6/21/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.1 (0.033)	0.0006 (0.0006)	0.00019 J (0.00045)	0.0005 J (0.00058)	0.2 (0.071)	0.004 (0.00093)	0.31 (0.029)	NA	0.088 (0.026)
Cumene	10000	10000	2500	0.079 (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)	4 (0.14)	ND (0.0018)	0.61 (0.059)	NA	1.3 (0.052)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.033)	ND (0.0006)	ND (0.00045)	ND (0.00058)	ND (0.071)	ND (0.00093)	ND (0.029)	NA	ND (0.026)
1,2-Dichloroethane	85	98	0.5	ND (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)	ND (0.14)	ND (0.0018)	ND (0.059)	NA	ND (0.052)
Ethanol					NA	NA	NA	NA	NA	NA		NA
Ethyl Benzene	880	1000	70	0.32 (0.067)	ND (0.0012)	ND (0.0009)	0.00022 J (0.0012)	0.87 (0.14)	0.00068 J (0.0018)	4.1 (0.059)	NA	0.24 (0.052)
Methyl tert-butyl ether	8500	9800	2	ND (0.13)	ND (0.0024)	ND (0.0018)	0.00025 J (0.0023)	ND (0.28)	ND (0.0037)	ND (0.12)	NA	ND (0.1)
Toluene	10000	10000	100	1.7 (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)	ND (0.14)	0.0013 J (0.0018)	0.12 (0.059)	NA	0.052 (0.052)
1,2,4-Trimethylbenzene	4700	5400	300	3.7 (0.13)	ND (0.0024)	0.00036 J (0.0018)	ND (0.0023)	62 (1.1)	ND (0.0037)	8.8 (0.12)	NA	3.3 (0.1)
1,3,5-Trimethylbenzene	4700	5400	93	1.1 (0.13)	ND (0.0024)	ND (0.0018)	ND (0.0023)	2.4 (0.28)	ND (0.0037)	1.1 (0.12)	NA	2.6 (0.1)
Xylenes (total)	7900	9100	1000	11.2 J (0.13)	ND (0.0024)	ND (0.0018)	ND (0.0023)	10.07 J (0.28)	ND (0.0037)	3.49 J (0.12)	NA	0.149 J (0.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.087 J (0.27)	ND (0.0048)	0.0007 J (0.0036)	ND (0.0046)	7.3 (0.57)	ND (0.0074)	1.7 (0.23)	NA	0.42 (0.21)
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	61.3 (2.21)	372 (2.32)	36.6 (2.24)	8.82 (2.17)	8.86 (2.31)	177 (2.55)	20 (2.31)	<u>488 (12.7)</u>	<u>1330 (2.25)</u>

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-34-03R	PB-34-04	PB-34-05	PB-34-06	PB-34-07	PB-34-08	PB-34-09	PB-34-10	PB-34-11			
Field Sample ID	PB-34-03R-6.0-6.5	PB-34-04-SS01	PB-34-05-SS01	PB-34-06-SS01	PB-34-07-SS01	PB-34-08-SS01	PB-34-09-SS01	PB-34-10-SS01	PB-34-11-SS01			
Collection Depth (ft bgs)	6 - 6.5	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5	2.5 - 3	3 - 3.5	2 - 2.5	4 - 4.5			
Sample Date	2/11/2022	2/11/2022	6/21/2021	6/21/2021	6/21/2021	2/11/2022	2/11/2022	2/11/2022	6/21/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	0.39 (0.057)	0.2 (0.034)	ND (0.029)	ND (0.037)	ND (0.065)	ND (0.033)	ND (0.15)	<u>4.1 (0.034)</u>
Cumene	10000	10000	2500	NA	0.99 (0.11)	1.8 (0.068)	0.013 J (0.059)	0.74 (0.075)	2.8 (0.13)	0.079 (0.066)	0.089 J (0.3)	0.24 (0.068)
1,2-Dibromoethane	3.7	4.2	0.005	NA	ND (0.057)	ND (0.034)	ND (0.029)	ND (0.037)	ND (0.065)	ND (0.033)	ND (0.15)	ND (0.034)
1,2-Dichloroethane	85	98	0.5	NA	ND (0.11)	ND (0.068)	ND (0.059)	ND (0.075)	ND (0.13)	ND (0.066)	ND (0.3)	ND (0.068)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	0.033 J (0.11)	0.19 (0.068)	ND (0.059)	0.018 J (0.075)	0.042 J (0.13)	0.011 J (0.066)	0.048 J (0.3)	13 (0.068)
Methyl tert-butyl ether	8500	9800	2	NA	ND (0.23)	ND (0.14)	ND (0.12)	ND (0.15)	ND (0.26)	ND (0.13)	ND (0.6)	ND (0.14)
Toluene	10000	10000	100	NA	ND (0.11)	0.18 (0.068)	ND (0.059)	ND (0.075)	ND (0.13)	ND (0.066)	ND (0.3)	2.3 (0.068)
1,2,4-Trimethylbenzene	4700	5400	300	NA	0.063 J (0.23)	0.28 (0.14)	ND (0.12)	0.05 J (0.15)	0.057 J (0.26)	ND (0.13)	ND (0.6)	13 (0.14)
1,3,5-Trimethylbenzene	4700	5400	93	NA	0.03 J (0.23)	0.078 J (0.14)	ND (0.12)	0.014 J (0.15)	ND (0.26)	ND (0.13)	ND (0.6)	4.5 (0.14)
Xylenes (total)	7900	9100	1000	NA	ND (0.23)	0.676 J (0.14)	ND (0.12)	ND (0.15)	ND (0.26)	ND (0.13)	ND (0.6)	59.4 J (0.27)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	0.037 J (0.2)	1.3 (0.27)	0.12 J (0.24)	0.71 (0.3)	0.14 J (0.2)	0.032 J (0.21)	0.048 J (0.19)	3.3 (0.27)
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	47.2 (2.28)	8 (2.41)	244 (2.27)	6.84 (2.24)	124 (2.7)	5.27 (2.34)	6.87 J (12.6)	8.27 J (11.3)	34.8 (2.51)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-34-11R	PB-34-11R	PB-34-12	PB-34-13	PB-34-14	PB-35-01	PB-35-02	PB-35-03	PB-35-04
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-34-11R-6.0-6.5	PB-34-11R-14.0-14.5	PB-34-12-SS01	PB-34-13-SS01	PB-34-14-SS01	PB-35-01-SS01	PB-35-02-SS01	PB-35-03-SS01	PB-35-04-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	6 - 6.5	14 - 14.5	2 - 2.5	4.5 - 5	2 - 2.5	1.5 - 2	4.5 - 5	3 - 3.5	4 - 4.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer TDS≤2500	2/11/2022	2/11/2022	6/21/2021	2/11/2022	6/21/2021	6/21/2021	6/21/2021	6/21/2021	6/21/2021
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>1.4 (0.039)</u>	<u>180 (1.5)</u>	<u>1.4 (0.074)</u>	0.016 (0.00045)	0.0011 (0.00046)	0.035 J (0.06)	ND (0.03)	ND (0.00052)	0.41 (0.029)
Cumene	10000	10000	2500	NA	NA	3.6 (0.15)	0.046 (0.0009)	0.00014 J (0.00092)	2.3 (0.12)	0.54 (0.06)	ND (0.001)	0.8 (0.059)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	ND (0.074)	ND (0.00045)	ND (0.00046)	ND (0.06)	ND (0.03)	ND (0.00052)	ND (0.029)
1,2-Dichloroethane	85	98	0.5	NA	NA	ND (0.15)	ND (0.0009)	ND (0.00092)	ND (0.12)	ND (0.06)	ND (0.001)	ND (0.059)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	NA	0.28 (0.15)	0.042 (0.0009)	ND (0.00092)	0.042 J (0.12)	ND (0.06)	ND (0.001)	7.9 (0.059)
Methyl tert-butyl ether	8500	9800	2	NA	NA	ND (0.29)	0.0013 J (0.0018)	0.00058 J (0.0018)	ND (0.24)	ND (0.12)	ND (0.0021)	ND (0.12)
Toluene	10000	10000	100	NA	NA	0.76 (0.15)	0.0039 (0.0009)	ND (0.00092)	ND (0.12)	ND (0.06)	ND (0.001)	0.89 (0.059)
1,2,4-Trimethylbenzene	4700	5400	300	NA	NA	0.84 (0.29)	0.08 (0.0018)	ND (0.0018)	0.057 J (0.24)	0.036 J (0.12)	ND (0.0021)	28 (0.59)
1,3,5-Trimethylbenzene	4700	5400	93	NA	NA	0.17 J (0.29)	0.0074 (0.0018)	ND (0.0018)	ND (0.24)	ND (0.12)	ND (0.0021)	10 (0.12)
Xylenes (total)	7900	9100	1000	NA	NA	1.9 J (0.29)	0.03 J (0.0018)	ND (0.0018)	0.26 J (0.24)	ND (0.12)	ND (0.0021)	39.8 J (0.12)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	NA	2 (0.59)	0.29 (0.19)	0.00062 J (0.0037)	0.18 J (0.48)	0.094 J (0.24)	ND (0.0041)	5.2 (0.23)
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	66.2 (2.51)	44.3 (10.9)	144 (2.17)	68.8 (2.46)	6.32 (2.45)	417 (2.16)	8.32 (2.41)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-35-05	PB-35-06	PB-35-07	PB-35-08	PB-35-08R	PB-35-08R	PB-35-09	PB-35-10	PB-35-11
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-35-05-SS01	PB-35-06-SS01	PB-35-07-SS01	PB-35-08-SS01	PB-35-08R-6.0-6.5	PB-35-08R-14.0-14.5	PB-35-09-SS01	PB-35-10-SS01	PB-35-11-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3.5 - 4	3 - 3.5	3.5 - 4	3.5 - 4	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	6/21/2021	2/10/2022	6/21/2021	6/21/2021	2/10/2022	2/10/2022	2/10/2022	2/10/2022	2/10/2022
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.032)	<u>0.89 (0.04)</u>	0.032 J (0.035)	<u>0.89 (0.07)</u>	<u>2.5 (0.15)</u>	0.24 (0.051)	0.31 (0.025)	<u>1.2 (0.036)</u>	<u>0.73 (0.026)</u>
Cumene	10000	10000	2500	1.3 (0.064)	0.37 (0.079)	0.25 (0.07)	1.2 (0.14)	NA	NA	0.035 J (0.051)	0.3 (0.072)	0.03 J (0.053)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.032)	ND (0.04)	ND (0.035)	ND (0.07)	NA	NA	ND (0.025)	ND (0.036)	ND (0.026)
1,2-Dichloroethane	85	98	0.5	ND (0.064)	ND (0.079)	ND (0.07)	ND (0.14)	NA	NA	ND (0.051)	ND (0.072)	ND (0.053)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.064)	1.8 (0.079)	0.65 (0.07)	12 (0.14)	NA	NA	0.1 (0.051)	0.9 (0.072)	0.15 (0.053)
Methyl tert-butyl ether	8500	9800	2	ND (0.13)	0.082 J (0.16)	ND (0.14)	ND (0.28)	NA	NA	0.077 J (0.1)	0.035 J (0.14)	0.066 J (0.1)
Toluene	10000	10000	100	0.043 J (0.064)	0.07 J (0.079)	ND (0.07)	10 (0.14)	NA	NA	ND (0.051)	0.06 J (0.072)	ND (0.053)
1,2,4-Trimethylbenzene	4700	5400	300	0.049 J (0.13)	0.095 J (0.16)	ND (0.14)	50 (0.56)	NA	NA	0.62 (0.1)	0.09 J (0.14)	0.052 J (0.1)
1,3,5-Trimethylbenzene	4700	5400	93	0.014 J (0.13)	0.028 J (0.16)	ND (0.14)	15 (0.28)	NA	NA	0.28 (0.1)	0.028 J (0.14)	ND (0.1)
Xylenes (total)	7900	9100	1000	0.62 J (0.13)	0.237 J (0.16)	ND (0.14)	54.4 J (0.28)	NA	NA	0.35 J (0.1)	0.12 J (0.14)	ND (0.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.98 (0.26)	0.48 (0.19)	0.045 J (0.28)	7.2 (0.56)	NA	NA	5.9 (0.2)	ND (0.2)	0.62 (0.19)
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	84.4 (2.26)	79.2 (2.31)	7.54 (2.36)	7.41 (2.36)	NA	NA	<u>1520 (11.5)</u>	57.6 (2.33)	173 (2.29)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-35-11	PB-35-12	PB-35-13	PB-35-14	PB-35-15	PB-36-01	PB-36-02	PB-36-03	PB-36-03R			
Field Sample ID	DUP-26	PB-35-12-SS01	PB-35-13-SS01	PB-35-14-SS01	PB-35-15-SS01	PB-36-01-SS01	PB-36-02-SS01	PB-36-03-SS01	PB-36-03R-6.0-6.5			
Collection Depth (ft bgs)	3 - 3.5	4 - 4.5	2.5 - 3	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5	3 - 3.5	6 - 6.5			
Sample Date	2/10/2022	6/21/2021	2/10/2022	2/10/2022	6/21/2021	10/5/2021	10/5/2021	10/5/2021	2/10/2022			
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>2.6 (0.043)</u>	<u>0.71 (0.061)</u>	<u>0.89 (0.029)</u>	<u>0.54 (0.033)</u>	ND (0.029)	<u>0.77 (0.04)</u>	0.066 (0.034)	<u>35 (0.63)</u>	0.00074 (0.00061)
Cumene	10000	10000	2500	1.2 (0.086)	4.8 (0.12)	0.29 (0.058)	0.24 (0.066)	2 (0.058)	13 (0.081)	2.4 (0.069)	21 (1.3)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.043)	ND (0.061)	ND (0.029)	ND (0.033)	ND (0.029)	ND (0.04)	ND (0.034)	ND (0.63)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.086)	ND (0.12)	ND (0.058)	ND (0.066)	ND (0.058)	ND (0.081)	ND (0.069)	ND (1.3)	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	19 (0.086)	0.1 J (0.12)	2 (0.058)	0.037 J (0.066)	0.03 J (0.058)	0.89 (0.081)	4.4 (0.069)	<u>160 (1.3)</u>	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.17)	ND (0.24)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.16)	ND (0.14)	ND (2.5)	NA
Toluene	10000	10000	100	42 (0.86)	0.085 J (0.12)	0.074 (0.058)	0.05 J (0.066)	0.039 J (0.058)	0.2 (0.081)	0.052 J (0.069)	<u>180 (1.3)</u>	ND (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	37 (1.7)	ND (0.24)	0.3 (0.12)	ND (0.13)	0.11 J (0.12)	0.38 (0.16)	3.7 (0.14)	<u>670 (13)</u>	0.00041 J (0.0024)
1,3,5-Trimethylbenzene	4700	5400	93	13 (0.17)	ND (0.24)	0.03 J (0.12)	ND (0.13)	0.052 J (0.12)	0.42 (0.16)	0.27 (0.14)	<u>180 (2.5)</u>	ND (0.0024)
Xylenes (total)	7900	9100	1000	110 J (1.7)	0.31 J (0.24)	0.344 J (0.12)	0.079 J (0.13)	0.27 J (0.12)	0.76 J (0.16)	0.26 J (0.14)	1000 J (2.5)	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.13 J (0.19)	0.88 (0.48)	6.9 (0.19)	0.062 J (0.2)	0.4 (0.23)	1.4 (0.32)	ND (0.28)	<u>66 (5)</u>	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	<u>1500 (11.5)</u>	6.73 (2.4)	63.2 (2.27)	7.51 J (11.6)	7.62 (2.31)	60.4 (2.36)	7.86 (2.36)	8.5 (2.44)	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location				PB-36-04	PB-36-05	PB-36-06	PB-36-07R	PB-36-07	PB-36-07R	PB-36-08	PB-36-08	PB-36-09
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-36-04-SS01	PB-36-05-SS01	PB-36-06-SS01	PB-36-07R-0.0-0.5	PB-36-07-SS01	PB-36-07R-6.0-6.5	PB-36-08-SS01	PB-36-08-DUP-19	PB-36-09-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	3 - 3.5	3 - 3.5	0 - 0.5	4 - 4.5	6 - 6.5	3 - 3.5	3 - 3.5	3.5 - 4
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	2/10/2022	10/5/2021	10/5/2021	2/10/2022	10/5/2021	2/10/2022	10/5/2021	10/5/2021	2/10/2022
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>1.2 (0.032)</u>	ND (0.00048)	0.1 (0.036)	NA	<u>2.7 (0.84)</u>	NA	0.0014 (0.00051)	ND (0.00046)	<u>35 (0.08)</u>
Cumene	10000	10000	2500	0.58 (0.065)	0.00071 J (0.00097)	11 (0.072)	NA	16 (1.7)	NA	0.19 (0.001)	ND (0.00092)	5.7 (0.16)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.032)	ND (0.00048)	ND (0.036)	NA	ND (0.84)	NA	ND (0.00051)	ND (0.00046)	ND (0.08)
1,2-Dichloroethane	85	98	0.5	ND (0.065)	ND (0.00097)	ND (0.072)	NA	ND (1.7)	NA	ND (0.001)	ND (0.00092)	ND (0.16)
Ethanol				NA	NA	NA		NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	1.4 (0.065)	ND (0.00097)	0.6 (0.072)	NA	<u>260 (1.7)</u>	2.9 (0.14)	0.00057 J (0.001)	ND (0.00092)	12 (0.16)
Methyl tert-butyl ether	8500	9800	2	0.59 (0.13)	ND (0.0019)	ND (0.14)	NA	ND (3.4)	NA	0.0004 J (0.002)	ND (0.0018)	0.4 (0.32)
Toluene	10000	10000	100	ND (0.065)	ND (0.00097)	0.19 (0.072)	NA	2.1 (1.7)	NA	0.0027 (0.001)	ND (0.00092)	ND (0.16)
1,2,4-Trimethylbenzene	4700	5400	300	6.1 (0.13)	ND (0.0019)	1.2 (0.14)	NA	<u>640 (6.7)</u>	17 (0.28)	ND (0.002)	ND (0.0018)	100 (13)
1,3,5-Trimethylbenzene	4700	5400	93	2.1 (0.13)	ND (0.0019)	0.27 (0.14)	NA	<u>260 (3.4)</u>	2 (0.28)	0.00044 J (0.002)	ND (0.0018)	29 (0.32)
Xylenes (total)	7900	9100	1000	0.52 J (0.13)	ND (0.0019)	1.18 J (0.14)	NA	<u>1080 J (6.7)</u>	4.71 J (0.28)	0.0058 J (0.002)	ND (0.0018)	14.87 J (0.32)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	4.9 (0.2)	0.0033 J (0.0039)	0.62 (0.29)	ND (0.2)	<u>87 (6.7)</u>	2.2 (0.17)	0.0027 J (0.0041)	ND (0.0037)	4.7 (0.2)
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	13.3 (4.9)	8.8 (2.38)	10.8 (2.41)	NA	10 (2.48)	NA	8.03 (2.47)	26.8 (2.35)	9.84 (2.32)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-36-10	PB-36-11	PB-36-12	PB-36-13	PB-36-14	PB-36-15	PB-36-16	PB-36-17	PB-36-18
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-36-10-SS01	PB-36-11-SS01	PB-36-12-SS01	PB-36-13-SS01	PB-36-14-SS01	PB-36-15-SS01	PB-36-16-SS01	PB-36-17-SS01	PB-36-18-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	4 - 4.5	3 - 3.5	2 - 2.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	10/5/2021	2/10/2022	10/5/2021	10/5/2021	2/10/2022	10/5/2021	10/5/2021	10/5/2021	10/5/2021
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>0.52 (0.15)</u>	0.019 J (0.031)	0.015 (0.00044)	ND (0.00047)	0.14 (0.036)	ND (0.00048)	0.03 J (0.032)	ND (0.00056)	ND (0.032)
Cumene	10000	10000	2500	1.1 (0.3)	0.95 (0.061)	0.0036 (0.00089)	ND (0.00094)	0.16 (0.072)	0.00036 J (0.00096)	0.044 J (0.065)	ND (0.0011)	0.0071 J (0.064)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.15)	ND (0.031)	ND (0.00044)	ND (0.00047)	ND (0.00046)	ND (0.00048)	ND (0.032)	ND (0.00056)	ND (0.032)
1,2-Dichloroethane	85	98	0.5	ND (0.3)	ND (0.061)	ND (0.00089)	ND (0.00094)	ND (0.00091)	ND (0.00096)	ND (0.065)	ND (0.0011)	ND (0.064)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	2.9 (0.3)	0.67 (0.061)	0.0016 (0.00089)	ND (0.00094)	2 (0.072)	ND (0.00096)	0.022 J (0.065)	ND (0.0011)	0.017 J (0.064)
Methyl tert-butyl ether	8500	9800	2	ND (0.61)	0.03 J (0.12)	0.0025 (0.0018)	ND (0.0019)	0.0088 (0.0018)	ND (0.0019)	ND (0.13)	ND (0.0022)	ND (0.13)
Toluene	10000	10000	100	0.22 J (0.3)	ND (0.061)	0.0013 (0.00089)	ND (0.00094)	0.072 (0.072)	ND (0.00096)	ND (0.065)	ND (0.0011)	ND (0.064)
1,2,4-Trimethylbenzene	4700	5400	300	0.14 J (0.61)	19 (1.2)	0.019 (0.0018)	ND (0.0019)	0.83 (0.14)	ND (0.0019)	0.051 J (0.13)	ND (0.0022)	0.061 J (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	0.091 J (0.61)	8.8 (0.12)	0.0047 (0.0018)	ND (0.0019)	1.7 (0.14)	ND (0.0019)	ND (0.13)	ND (0.0022)	0.021 J (0.13)
Xylenes (total)	7900	9100	1000	1.25 J (0.61)	1.331 J (0.12)	0.0072 J (0.0018)	0.0016 J (0.0019)	1.576 J (0.14)	0.00169 J (0.0019)	0.118 J (0.13)	0.00192 J (0.0022)	0.104 J (0.13)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	1.1 J (1.2)	1.4 (0.2)	0.0039 (0.0036)	ND (0.0038)	0.073 J (0.19)	0.00085 J (0.0038)	0.12 J (0.26)	ND (0.0045)	0.081 J (0.26)
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	8.22 (2.42)	8.57 (2.36)	45.4 (11.6)	15.8 (2.29)	218 (2.22)	7.32 (2.3)	87.5 (2.29)	10.7 (2.4)	112 (2.36)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-37-01	PB-37-02	PB-37-03	PB-37-04	PB-37-05	PB-37-05R	PB-37-05R	PB-37-06	PB-37-07
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-37-01-SS01	PB-37-02-SS01	PB-37-03-SS01	PB-37-04-SS01	PB-37-05-SS01	PB-37-05R-6.0-6.5	PB-37-05R-14.0-14.5	PB-37-06-SS01	PB-37-07-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	3 - 3.5	1 - 1.5	3 - 3.5	3 - 3.5	6 - 6.5	14 - 14.5	2 - 2.5	3.5 - 4
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer TDS≤2500	7/27/2021	7/27/2021	7/27/2021	2/9/2022	7/27/2021	2/9/2022	2/9/2022	7/27/2021	2/9/2022
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.00056)	ND (0.035)	<u>0.8 (0.047)</u>	0.00024 J (0.00046)	<u>1.3 (0.036)</u>	<u>11 (1.7)</u>	0.008 (0.0005)	0.0085 (0.00059)	0.021 (0.00044)
Cumene	10000	10000	2500	0.0036 (0.0011)	0.071 (0.069)	1.4 (0.094)	ND (0.00092)	0.32 (0.072)	NA	NA	0.018 (0.0012)	0.031 (0.00089)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00056)	ND (0.035)	ND (0.047)	ND (0.00046)	ND (0.036)	NA	NA	ND (0.00059)	ND (0.00044)
1,2-Dichloroethane	85	98	0.5	ND (0.0011)	ND (0.069)	ND (0.094)	ND (0.00092)	ND (0.072)	NA	NA	ND (0.0012)	ND (0.00089)
Ethanol				NA	NA		NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0011)	0.24 (0.069)	15 (0.094)	0.00016 J (0.00092)	3.8 (0.072)	NA	NA	0.004 (0.0012)	0.081 (0.00089)
Methyl tert-butyl ether	8500	9800	2	ND (0.0022)	ND (0.14)	ND (0.19)	0.0029 (0.0018)	ND (0.14)	NA	NA	ND (0.0024)	0.012 (0.0018)
Toluene	10000	10000	100	ND (0.0011)	ND (0.069)	65 (0.47)	ND (0.00092)	9.8 (0.072)	NA	NA	0.0067 (0.0012)	0.012 (0.00089)
1,2,4-Trimethylbenzene	4700	5400	300	0.00068 J (0.0022)	1 (0.14)	32 (0.94)	0.0004 J (0.0018)	10 (0.14)	NA	NA	0.0091 (0.0024)	0.15 (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0022)	0.14 (0.14)	10 (0.19)	ND (0.0018)	2.8 (0.14)	NA	NA	0.027 (0.0024)	0.074 (0.0018)
Xylenes (total)	7900	9100	1000	0.00206 J (0.0022)	0.4045 J (0.14)	85 J (0.94)	ND (0.0018)	18.7 J (0.14)	NA	NA	0.0688 J (0.0024)	0.138 J (0.0018)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.0024 J (0.0044)	0.28 (0.28)	1.8 (0.37)	ND (0.17)	1.9 (0.29)	NA	NA	ND (0.0047)	ND (0.18)
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	449 (2.4)	131 (1.6)	61.2 (2.2)	12.4 (2.04)	85 (2.4)	NA	NA	9.4 (2.3)	5.19 (2.03)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-37-08	PB-37-09	PB-37-10	PB-37-11R	PB-37-11	PB-37-11R	PB-37-11R	PB-37-12	PB-37-13
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-37-08-SS01	PB-37-09-SS01	PB-37-10-SS01	PB-37-11R-0.0-0.5	PB-37-11-SS01	PB-37-11R-6.0-6.5	PB-37-11R-14.0-14.5	PB-37-12-SS01	PB-37-13-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	3 - 3.5	2.5 - 3	0 - 0.5	3 - 3.5	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	2/9/2022	7/27/2021	7/27/2021	2/9/2022	7/27/2021	2/9/2022	2/9/2022	7/27/2021	2/9/2022
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.00019 J (0.0005)	0.0015 (0.00061)	ND (0.028)	NA	ND (0.0006)	NA	NA	0.26 (0.036)	0.017 J (0.025)
Cumene	10000	10000	2500	ND (0.001)	0.0092 (0.0012)	0.88 (0.056)	NA	0.0005 J (0.0012)	NA	NA	0.033 J (0.072)	0.27 (0.05)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.0005)	ND (0.00061)	ND (0.028)	NA	ND (0.0006)	NA	NA	ND (0.036)	ND (0.025)
1,2-Dichloroethane	85	98	0.5	ND (0.001)	ND (0.0012)	ND (0.056)	NA	ND (0.0012)	NA	NA	ND (0.072)	ND (0.05)
Ethanol				NA	NA	NA		NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.00015 J (0.001)	0.00056 J (0.0012)	0.16 (0.056)	NA	ND (0.0012)	NA	NA	0.23 (0.072)	0.19 (0.05)
Methyl tert-butyl ether	8500	9800	2	0.00072 J (0.002)	ND (0.0024)	ND (0.11)	NA	ND (0.0024)	NA	NA	ND (0.14)	ND (0.1)
Toluene	10000	10000	100	ND (0.001)	0.0047 (0.0012)	0.074 (0.056)	NA	ND (0.0012)	NA	NA	2 (0.072)	0.034 J (0.05)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.002)	0.0035 (0.0024)	0.059 J (0.11)	NA	ND (0.0024)	NA	NA	0.47 (0.14)	0.13 (0.1)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.002)	0.0042 (0.0024)	0.27 (0.11)	NA	ND (0.0024)	NA	NA	0.16 (0.14)	0.042 J (0.1)
Xylenes (total)	7900	9100	1000	ND (0.002)	0.00432 J (0.0024)	0.137 J (0.11)	NA	ND (0.0024)	NA	NA	1.26 J (0.14)	0.219 J (0.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.18)	ND (0.0049)	2.1 (0.22)	NA	ND (0.0048)	NA	NA	0.19 J (0.29)	ND (0.17)
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	15.9 (2.12)	8.7 (2.2)	5.8 (2.3)	161 (2.3)	<u>2740 (12)</u>	<u>854 (2.26)</u>	52.2 (2.38)	119 (2.6)	58.5 (2.03)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02
Philadelphia Energy Solutions Refining and Marketing, LLC, Philadelphia, PA

Location	PB-37-14	PB-37-15	PB-37-16	PB-37-17	PB-38-01	PB-38-01	PB-38-02	PB-38-03	PB-38-04			
Field Sample ID	PB-37-14-SS01	PB-37-15-SS01	PB-37-16-SS01	PB-37-17-SS01	PB-38-01-SS01	DUP-14	PB-38-02-SS01	PB-38-03-SS01	PB-38-04-SS01			
Collection Depth (ft bgs)	4.5 - 5	2.5 - 3	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5			
Sample Date	2/9/2022	7/27/2021	7/27/2021	7/27/2021	7/16/2021	7/16/2021	7/16/2021	7/16/2021	7/16/2021			
Comments						FD						
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>1.7 (0.28)</u>	0.0053 (0.00063)	0.043 J (0.12)	0.0004 J (0.00051)	0.1 (0.00061)	ND (0.00062)	0.00076 (0.00051)	<u>7.2 (0.054)</u>	<u>10 (0.029)</u>
Cumene	10000	10000	2500	3.8 (0.56)	0.042 (0.0013)	6 (0.25)	0.0084 (0.001)	0.028 (0.0012)	ND (0.0012)	0.0038 (0.001)	0.5 (0.11)	5.5 (0.059)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.28)	ND (0.00063)	ND (0.12)	ND (0.00051)	ND (0.00061)	ND (0.00062)	ND (0.00051)	ND (0.054)	ND (0.029)
1,2-Dichloroethane	85	98	0.5	ND (0.56)	ND (0.0013)	ND (0.25)	ND (0.001)	ND (0.0012)	ND (0.0012)	ND (0.001)	ND (0.11)	ND (0.059)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.56 (0.56)	0.046 J (0.084)	0.18 J (0.25)	0.0028 (0.001)	0.005 (0.0012)	ND (0.0012)	ND (0.001)	1.8 (0.11)	15 (0.059)
Methyl tert-butyl ether	8500	9800	2	0.92 J (1.1)	0.00086 J (0.0025)	ND (0.5)	ND (0.002)	0.0024 (0.0024)	ND (0.0025)	0.0024 (0.002)	ND (0.21)	ND (0.12)
Toluene	10000	10000	100	ND (0.56)	0.0037 (0.0013)	ND (0.25)	0.00078 J (0.001)	0.015 (0.0012)	ND (0.0012)	0.0008 J (0.001)	3.3 (0.11)	1.2 (0.059)
1,2,4-Trimethylbenzene	4700	5400	300	ND (1.1)	0.2 (0.17)	ND (0.5)	0.086 (0.002)	0.0061 (0.0024)	ND (0.0025)	0.00078 J (0.002)	0.97 (0.21)	5.4 (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	ND (1.1)	0.029 (0.0025)	ND (0.5)	0.001 J (0.002)	0.0062 (0.0024)	ND (0.0025)	0.00088 J (0.002)	0.13 J (0.21)	4.3 (0.12)
Xylenes (total)	7900	9100	1000	ND (1.1)	0.09 J (0.17)	ND (0.5)	0.016 J (0.002)	0.0429 J (0.0024)	ND (0.0025)	0.0073 J (0.002)	6.9 J (0.21)	21.9 J (0.12)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.18)	0.22 (0.005)	0.21 J (0.99)	0.0017 J (0.004)	ND (0.0049)	ND (0.005)	ND (0.0041)	2 (0.43)	10 (0.23)
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	7.42 (2.03)	<u>647 (2.8)</u>	14.3 (2.4)	<u>1850 (12)</u>	110 (2.6)	179 (2.2)	22.9 (2.4)	96.7 (2.4)	188 (2.4)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-38-05	PB-38-06	PB-38-07	PB-38-08	PB-38-09	PB-38-10	PB-38-11R	PB-38-11	PB-38-11R			
Field Sample ID	PB-38-05-SS01	PB-38-06-SS01	PB-38-07-SS01	PB-38-08-SS01	PB-38-09-SS01	PB-38-10-SS01	PB-38-11R-0.0-0.5	PB-38-11-SS01	PB-38-11R-6.0-6.5			
Collection Depth (ft bgs)	3 - 3.5	3.5 - 4	3.5 - 4	3 - 3.5	3 - 3.5	3 - 3.5	0 - 0.5	3 - 3.5	6 - 6.5			
Sample Date	7/16/2021	7/16/2021	7/16/2021	7/16/2021	7/16/2021	7/16/2021	2/9/2022	7/16/2021	2/9/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.00054 (0.00052)	0.038 (0.00054)	0.00055 (0.00048)	<u>8.4 (0.15)</u>	0.0002 J (0.00051)	<u>1.1 (0.031)</u>	NA	0.0014 (0.00056)	NA
Cumene	10000	10000	2500	0.00035 J (0.001)	0.00073 J (0.0011)	0.00044 J (0.00096)	8 (0.3)	ND (0.001)	0.02 J (0.063)	NA	0.003 (0.0011)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00052)	ND (0.00054)	ND (0.00048)	ND (0.15)	ND (0.00051)	ND (0.031)	NA	ND (0.00056)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.001)	ND (0.0011)	ND (0.00096)	ND (0.3)	ND (0.001)	0.064 (0.063)	NA	ND (0.0011)	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.001 (0.001)	0.00074 J (0.0011)	0.00043 J (0.00096)	39 (0.3)	ND (0.001)	0.4 (0.063)	NA	0.0043 (0.0011)	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.0021)	0.11 (0.0022)	0.00044 J (0.0019)	ND (0.6)	0.00073 J (0.002)	0.022 J (0.12)	NA	0.002 J (0.0022)	NA
Toluene	10000	10000	100	0.0042 (0.001)	0.0011 (0.0011)	ND (0.00096)	20 (0.3)	ND (0.001)	3.9 (0.063)	NA	0.02 (0.0011)	NA
1,2,4-Trimethylbenzene	4700	5400	300	0.009 (0.0021)	0.0013 J (0.0022)	ND (0.0019)	150 (1.2)	ND (0.002)	1 (0.12)	NA	0.0075 (0.0022)	NA
1,3,5-Trimethylbenzene	4700	5400	93	0.0032 (0.0021)	0.0012 J (0.0022)	ND (0.0019)	49 (0.6)	ND (0.002)	0.28 (0.12)	NA	0.0026 (0.0022)	NA
Xylenes (total)	7900	9100	1000	0.053 J (0.0021)	0.0036 J (0.0022)	0.0012 J (0.0019)	76 J (0.6)	ND (0.002)	4.95 J (0.12)	NA	0.041 J (0.0022)	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0042)	0.00093 J (0.0043)	0.001 J (0.0038)	24 (1.2)	ND (0.0041)	0.24 J (0.25)	NA	ND (0.0045)	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	13.6 (2.4)	17.8 (2.5)	81.7 (2.4)	30.3 (2.3)	188 (2.4)	<u>464 (2.5)</u>	18.7 (2.15)	<u>780 (2.4)</u>	22.6 (2.21)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-38-12	PB-38-13	PB-38-13R	PB-38-13R	PB-38-14	PB-39-01	PB-39-02	PB-39-03	PB-39-04			
Field Sample ID	PB-38-12-SS01	PB-38-13-SS01	PB-38-13R-6.0-6.5	PB-38-13R-14.0-14.5	PB-38-14-SS01	PB-39-01-SS01	PB-39-02-SS01	PB-39-03-SS01	PB-39-04-SS01			
Collection Depth (ft bgs)	4.5 - 5	3 - 3.5	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5	4 - 4.5	3 - 3.5	2 - 2.5			
Sample Date	7/16/2021	7/16/2021	2/9/2022	2/9/2022	7/16/2021	7/15/2021	7/15/2021	7/15/2021	7/15/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.04 J (0.064)	<u>19 (0.12)</u>	<u>3 (0.024)</u>	0.16 (0.035)	0.054 (0.04)	0.0012 (0.00069)	0.00018 J (0.00049)	ND (0.00082)	<u>0.65 (0.028)</u>
Cumene	10000	10000	2500	0.42 (0.13)	5.2 (0.25)	NA	NA	0.1 (0.08)	0.00022 J (0.0014)	0.011 (0.00099)	ND (0.0016)	0.33 (0.056)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.064)	ND (0.12)	NA	NA	ND (0.04)	ND (0.00069)	ND (0.00049)	ND (0.00082)	ND (0.028)
1,2-Dichloroethane	85	98	0.5	ND (0.13)	0.078 J (0.25)	NA	NA	ND (0.08)	ND (0.0014)	ND (0.00099)	ND (0.0016)	ND (0.056)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.032 J (0.13)	28 (0.25)	NA	NA	0.05 J (0.08)	ND (0.0014)	0.00039 J (0.00099)	ND (0.0016)	5.3 (0.056)
Methyl tert-butyl ether	8500	9800	2	0.059 J (0.26)	ND (0.5)	NA	NA	ND (0.16)	ND (0.0028)	ND (0.002)	ND (0.0033)	0.015 J (0.11)
Toluene	10000	10000	100	ND (0.13)	0.75 (0.25)	NA	NA	0.082 (0.08)	ND (0.0014)	ND (0.00099)	ND (0.0016)	0.16 (0.056)
1,2,4-Trimethylbenzene	4700	5400	300	0.18 J (0.26)	98 (1.2)	NA	NA	0.18 (0.16)	ND (0.0028)	0.003 (0.002)	ND (0.0033)	13 (0.11)
1,3,5-Trimethylbenzene	4700	5400	93	0.078 J (0.26)	31 (0.5)	NA	NA	0.046 J (0.16)	ND (0.0028)	0.00038 J (0.002)	ND (0.0033)	2.7 (0.11)
Xylenes (total)	7900	9100	1000	0.279 J (0.26)	41.7 J (0.5)	NA	NA	0.306 J (0.16)	ND (0.0028)	0.00319 J (0.002)	ND (0.0033)	19.38 J (0.11)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.34 J (0.51)	12 (1)	NA	NA	0.71 (0.32)	ND (0.0055)	0.0067 (0.004)	ND (0.0066)	5.4 (0.22)
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	31.6 (3.3)	12.7 (2.4)	NA	NA	36.6 (2.8)	153 (2.3)	26.1 (2.3)	19.4 (2.4)	137 (2.6)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-39-05	PB-39-06	PB-39-07	PB-39-08	PB-39-09	PB-39-10	PB-39-11	PB-39-12	PB-39-12R			
Field Sample ID	PB-39-05-SS01	PB-39-06-SS01	PB-39-07-SS01	PB-39-08-SS01	PB-39-09-SS01	PB-39-10-SS01	PB-39-11-SS01	PB-39-12-SS01	PB-39-12R-6.0-6.5			
Collection Depth (ft bgs)	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	6 - 6.5			
Sample Date	7/15/2021	7/15/2021	7/15/2021	7/15/2021	7/15/2021	7/15/2021	7/15/2021	7/15/2021	2/10/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.015 (0.00084)	<u>0.92 (0.05)</u>	ND (0.00051)	<u>0.72 (0.03)</u>	<u>1.4 (0.061)</u>	0.00028 J (0.00064)	0.002 (0.00073)	<u>73 (0.78)</u>	<u>1.7 (0.031)</u>
Cumene	10000	10000	2500	0.07 (0.0017)	0.72 (0.099)	ND (0.001)	16 (0.06)	7.6 (0.12)	ND (0.0013)	0.0011 J (0.0015)	11 (1.6)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00084)	ND (0.05)	ND (0.00051)	ND (0.03)	ND (0.061)	ND (0.00064)	ND (0.00073)	ND (0.78)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.0017)	ND (0.099)	ND (0.001)	ND (0.06)	ND (0.12)	ND (0.0013)	ND (0.0015)	ND (1.6)	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.0051 (0.0017)	0.26 (0.099)	ND (0.001)	1.2 (0.06)	0.33 (0.12)	ND (0.0013)	0.001 J (0.0015)	<u>180 (1.6)</u>	0.35 (0.062)
Methyl tert-butyl ether	8500	9800	2	0.0037 (0.0034)	ND (0.2)	0.0047 (0.002)	0.015 J (0.12)	ND (0.24)	0.0019 J (0.0025)	0.00081 J (0.0029)	0.37 J (3.1)	NA
Toluene	10000	10000	100	0.0077 (0.0017)	0.37 (0.099)	ND (0.001)	0.2 (0.06)	0.68 (0.12)	ND (0.0013)	ND (0.0015)	<u>350 (3.1)</u>	7.1 (0.062)
1,2,4-Trimethylbenzene	4700	5400	300	0.0041 (0.0034)	0.34 (0.2)	ND (0.002)	3.1 (0.12)	0.5 (0.24)	ND (0.0025)	ND (0.0029)	<u>390 (3.1)</u>	0.46 (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	0.0024 J (0.0034)	0.1 J (0.2)	ND (0.002)	1.8 (0.12)	0.14 J (0.24)	ND (0.0025)	ND (0.0029)	<u>98 (3.1)</u>	0.094 J (0.12)
Xylenes (total)	7900	9100	1000	0.0196 J (0.0034)	1.3 J (0.2)	ND (0.002)	0.55 J (0.12)	1.42 J (0.24)	ND (0.0025)	0.002 J (0.0029)	920 J (6.3)	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.0011 J (0.0068)	0.26 J (0.4)	ND (0.004)	10 (0.24)	0.97 (0.49)	ND (0.0051)	0.016 (0.0058)	<u>40 (6.3)</u>	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	268 (1.5)	72.5 (2.4)	59.4 (1.4)	28.8 (2.3)	130 (1.5)	419 (2.6)	32.5 (2.3)	31.5 (2.5)	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-39-12R		PB-39-13		PB-40-01		PB-40-02		PB-40-03		PB-40-04		PB-40-05		PB-40-06		PB-40-06		
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-39-12R-14.0-14.5	PB-39-13-SS01	PB-40-01-SS01	PB-40-02-SS01	PB-40-03-SS01	PB-40-04-SS01	PB-40-05-SS01	PB-40-06-SS01	PB-40-06-SS01	DUP-07		DUP-07		DUP-07		
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	14 - 14.5	3 - 3.5	2.5 - 3	4.5 - 5	3 - 3.5	3.5 - 4	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5		3 - 3.5		3 - 3.5		
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	2/10/2022	7/15/2021	6/22/2021	6/22/2021	6/22/2021	6/22/2021	6/21/2021	6/21/2021	6/21/2021	6/21/2021		6/21/2021		6/21/2021		
Comments	MSCs		TDS≤2500															FD	
Volatile Organic Compounds																			
Benzene	280	330	0.5	<u>45 (0.7)</u>	0.16 (0.032)	0.04 J (0.043)	ND (0.062)	0.039 J (0.065)	0.014 J (0.03)	ND (0.00048)	0.0027 (0.00041)	0.43 (0.029)							
Cumene	10000	10000	2500	NA	0.6 (0.063)	3.9 (0.087)	12 (0.12)	3.2 (0.13)	0.49 (0.06)	0.0024 (0.00095)	0.0002 J (0.00082)	0.22 (0.058)							
1,2-Dibromoethane	3.7	4.2	0.005	NA	ND (0.032)	ND (0.043)	ND (0.062)	ND (0.065)	ND (0.03)	ND (0.00048)	ND (0.00041)	ND (0.029)							
1,2-Dichloroethane	85	98	0.5	NA	ND (0.063)	ND (0.087)	ND (0.12)	ND (0.13)	ND (0.06)	ND (0.00095)	ND (0.00082)	ND (0.058)							
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA							
Ethyl Benzene	880	1000	70	NA	0.12 (0.063)	0.061 J (0.087)	0.044 J (0.12)	0.14 (0.13)	0.069 (0.06)	ND (0.00095)	0.0002 J (0.00082)	1.3 (0.058)							
Methyl tert-butyl ether	8500	9800	2	NA	ND (0.13)	ND (0.17)	ND (0.25)	ND (0.26)	ND (0.12)	ND (0.0019)	ND (0.0016)	ND (0.12)							
Toluene	10000	10000	100	NA	0.046 J (0.063)	0.062 J (0.087)	ND (0.12)	0.1 J (0.13)	0.036 J (0.06)	ND (0.00095)	ND (0.00082)	0.037 J (0.058)							
1,2,4-Trimethylbenzene	4700	5400	300	NA	0.087 J (0.13)	0.18 (0.17)	0.058 J (0.25)	0.38 (0.26)	0.086 J (0.12)	ND (0.0019)	0.0003 J (0.0016)	2.6 (0.12)							
1,3,5-Trimethylbenzene	4700	5400	93	NA	0.03 J (0.13)	0.027 J (0.17)	ND (0.25)	0.059 J (0.26)	0.03 J (0.12)	ND (0.0019)	ND (0.0016)	0.22 (0.12)							
Xylenes (total)	7900	9100	1000	NA	0.17 J (0.13)	0.265 J (0.17)	0.245 J (0.25)	0.46 J (0.26)	0.25 J (0.12)	ND (0.0019)	0.0011 J (0.0016)	1.647 J (0.12)							
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							
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA							
Naphthalene	66	77	25	NA	0.041 (0.0046)	1.2 (0.35)	1.8 (0.5)	1.9 (0.52)	0.15 J (0.24)	ND (0.0038)	0.00053 J (0.0033)	1.9 (0.23)							
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	84.8 (1.5)	272 (2.9)	6.14 (2.39)	297 (2.64)	36.3 (2.27)	355 (2.19)	247 (2.32)	29.8 (2.2)							

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-40-07	PB-40-08	PB-40-09	PB-40-10	PB-40-11	PB-40-12R	PB-40-12	PB-40-12R	PB-40-13			
Field Sample ID	PB-40-07-SS01	PB-40-08-SS01	PB-40-09-SS01	PB-40-10-SS01	PB-40-11-SS01	PB-40-12R-0.0-0.5	PB-40-12-SS01	PB-40-12R-6.0-6.5	PB-40-13-SS01			
Collection Depth (ft bgs)	3.5 - 4	4 - 4.5	3 - 3.5	4 - 4.5	3 - 3.5	0 - 0.5	3 - 3.5	6 - 6.5	4 - 4.5			
Sample Date	6/22/2021	6/22/2021	6/22/2021	6/22/2021	6/22/2021	2/11/2022	6/22/2021	2/11/2022	6/22/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.026)	ND (0.055)	0.0049 (0.00052)	ND (0.056)	0.023 (0.00054)	NA	<u>0.59 (0.033)</u>	0.0037 (0.00049)	0.00095 (0.00066)
Cumene	10000	10000	2500	0.064 (0.052)	1.1 (0.11)	0.0014 (0.001)	4 (0.11)	0.021 (0.0011)	NA	1.4 (0.065)	NA	0.038 (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.026)	ND (0.055)	ND (0.00052)	ND (0.056)	ND (0.00054)	NA	ND (0.033)	NA	ND (0.00066)
1,2-Dichloroethane	85	98	0.5	ND (0.052)	ND (0.11)	ND (0.001)	ND (0.11)	ND (0.0011)	NA	ND (0.065)	NA	ND (0.0013)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.026 J (0.052)	0.029 J (0.11)	0.0012 (0.001)	0.24 (0.11)	0.027 (0.0011)	NA	0.83 (0.065)	NA	0.00042 J (0.0013)
Methyl tert-butyl ether	8500	9800	2	ND (0.1)	ND (0.22)	ND (0.0021)	ND (0.22)	ND (0.0022)	NA	0.014 J (0.13)	NA	ND (0.0026)
Toluene	10000	10000	100	ND (0.052)	ND (0.11)	ND (0.001)	ND (0.11)	0.03 (0.0011)	NA	0.17 (0.065)	NA	0.0025 (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	0.74 (0.1)	ND (0.22)	ND (0.0021)	0.17 J (0.22)	0.11 (0.0022)	NA	0.3 (0.13)	NA	0.00067 J (0.0026)
1,3,5-Trimethylbenzene	4700	5400	93	0.23 (0.1)	ND (0.22)	ND (0.0021)	ND (0.22)	0.037 (0.0022)	NA	0.04 J (0.13)	NA	ND (0.0026)
Xylenes (total)	7900	9100	1000	0.077 J (0.1)	0.179 J (0.22)	ND (0.0021)	0.21 J (0.22)	0.125 J (0.0022)	NA	1.054 J (0.13)	NA	0.0032 J (0.0026)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.12 J (0.21)	0.63 (0.44)	0.0024 J (0.0042)	0.5 (0.45)	0.035 (0.0043)	NA	0.79 (0.26)	NA	0.0058 (0.0053)
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	<u>463 (2.3)</u>	41.1 (2.04)	15.5 (2.08)	58.2 (2.2)	258 (2.3)	7.08 (2.47)	<u>1070 (2.42)</u>	31.2 (11.5)	8.13 (2.35)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-40-14	PB-40-15	PB-40-16	PB-42-01	PB-42-02	PB-42-03	PB-42-04	PB-42-05	PB-42-06			
Field Sample ID	PB-40-14-SS01	PB-40-15-SS01	PB-40-16-SS01	PB-42-01-SS01	PB-42-02-SS01	PB-42-03-SS01	PB-42-04-SS01	PB-42-05-SS01	PB-42-06-SS01			
Collection Depth (ft bgs)	3 - 3.5	4 - 4.5	4 - 4.5	2.5 - 3	3 - 3.5	3 - 3.5	1.5 - 2	3 - 3.5	1 - 1.5			
Sample Date	6/22/2021	6/22/2021	6/22/2021	6/24/2021	6/24/2021	6/24/2021	6/24/2021	6/24/2021	6/24/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.12 (0.00051)	0.0018 (0.00051)	0.0007 (0.00049)	0.001 (0.00057)	ND (0.037)	ND (0.03)	ND (0.21)	ND (0.033)	0.00033 J (0.00052)
Cumene	10000	10000	2500	0.017 (0.001)	0.0032 (0.001)	0.046 (0.00098)	0.042 (0.0011)	2.1 (0.075)	0.65 (0.061)	10 (0.42)	1 (0.065)	0.066 (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00051)	ND (0.00051)	ND (0.00049)	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	ND (0.001)	ND (0.001)	ND (0.00098)	NA	NA	NA	NA	NA	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.01 (0.001)	0.0078 (0.001)	0.0025 (0.00098)	0.00032 J (0.0011)	ND (0.075)	ND (0.061)	0.12 J (0.42)	ND (0.065)	0.00019 J (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.0023)	ND (0.15)	ND (0.12)	ND (0.84)	ND (0.13)	0.00026 J (0.0021)
Toluene	10000	10000	100	0.0094 (0.001)	0.0033 (0.001)	0.0027 (0.00098)	ND (0.0011)	ND (0.075)	ND (0.061)	ND (0.42)	0.047 J (0.065)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	0.073 (0.002)	0.032 (0.002)	0.046 (0.002)	0.0082 (0.0023)	ND (0.15)	0.17 (0.12)	0.55 J (0.84)	0.036 J (0.13)	0.00089 J (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	0.023 (0.002)	0.012 (0.002)	0.019 (0.002)	0.00086 J (0.0023)	ND (0.15)	0.048 J (0.12)	ND (0.84)	ND (0.13)	0.00021 J (0.0021)
Xylenes (total)	7900	9100	1000	0.029 J (0.002)	0.0168 J (0.002)	0.0312 J (0.002)	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.033 (0.0041)	0.016 (0.004)	0.0028 J (0.0039)	0.0085 (0.0046)	0.75 (0.3)	0.26 (0.24)	ND (1.7)	0.18 J (0.26)	0.012 (0.0041)
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	248 (2.28)	34.4 (2.1)	40.1 (2.33)	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1

Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-42-07	PB-42-08	PB-42-09	PB-42-09R	PB-42-10	PB-42-11	PB-42-12	PB-42-13	PB-42-14			
Field Sample ID	PB-42-07-SS01	PB-42-08-SS01	PB-42-09-SS01	PB-42-09R-6.0-6.5	PB-42-10-SS01	PB-42-11-SS01	PB-42-12-SS01	PB-42-13-SS01	PB-42-14-SS01			
Collection Depth (ft bgs)	1 - 1.5	2.5 - 3	4 - 4.5	6 - 6.5	3.5 - 4	1 - 1.5	3 - 3.5	3 - 3.5	3 - 3.5			
Sample Date	6/24/2021	6/24/2021	6/24/2021	2/14/2022	6/24/2021	6/24/2021	6/24/2021	6/24/2021	6/24/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.072)	0.028 J (0.056)	<u>0.78 (0.037)</u>	0.18 (0.00057)	0.03 J (0.034)	ND (0.057)	ND (0.00051)	0.062 (0.061)	0.068 (0.038)
Cumene	10000	10000	2500	0.59 (0.14)	3 (0.11)	0.52 (0.073)	NA	1.1 (0.068)	1.8 (0.11)	ND (0.001)	2.2 (0.12)	0.073 J (0.075)
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
Ethanol					NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.067 J (0.14)	1.2 (0.11)	0.21 (0.073)	NA	0.049 J (0.068)	0.042 J (0.11)	ND (0.001)	0.069 J (0.12)	0.22 (0.075)
Methyl tert-butyl ether	8500	9800	2	ND (0.29)	ND (0.22)	ND (0.15)	NA	ND (0.14)	ND (0.23)	0.00032 J (0.002)	ND (0.24)	ND (0.15)
Toluene	10000	10000	100	ND (0.14)	0.072 J (0.11)	0.078 (0.073)	NA	0.064 J (0.068)	0.068 J (0.11)	ND (0.001)	ND (0.12)	ND (0.075)
1,2,4-Trimethylbenzene	4700	5400	300	0.2 J (0.29)	1.3 (0.22)	2.7 (0.15)	NA	0.15 (0.14)	0.2 J (0.23)	ND (0.002)	0.098 J (0.24)	0.79 (0.15)
1,3,5-Trimethylbenzene	4700	5400	93	0.034 J (0.29)	0.024 J (0.22)	0.24 (0.15)	NA	0.033 J (0.14)	0.028 J (0.23)	ND (0.002)	0.026 J (0.24)	0.2 (0.15)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.52 J (0.58)	0.88 (0.45)	0.74 (0.29)	NA	0.18 J (0.27)	2.1 (0.46)	ND (0.0041)	0.3 J (0.49)	0.24 J (0.3)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
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Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-42-14	PB-42-15	PB-42-16	PB-43-01	PB-43-02	PB-43-03	PB-43-04	PB-43-05	PB-43-06			
Field Sample ID	DUP-10	PB-42-15-SS01	PB-42-16-SS01	PB-43-01-SS01	PB-43-02-SS01	PB-43-03-SS01	PB-43-04-SS01	PB-43-05-SS01	PB-43-06-SS01			
Collection Depth (ft bgs)	3 - 3.5	3 - 3.5	4.5 - 5	3 - 3.5	3 - 3.5	3.5 - 4	3.5 - 4	3 - 3.5	4 - 4.5			
Sample Date	6/24/2021	6/24/2021	6/24/2021	2/14/2022	2/14/2022	2/14/2022	6/25/2021	2/14/2022	2/14/2022			
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	0.34 (0.036)	ND (0.043)	0.0004 J (0.00045)	0.00052 J (0.00068)	0.012 J (0.03)	ND (0.00047)	0.035 (0.00047)	ND (0.0006)	0.0007 (0.00042)
Cumene	10000	10000	2500	0.45 (0.072)	0.3 (0.086)	0.012 (0.0009)	0.00022 J (0.0014)	0.38 (0.061)	0.028 (0.00094)	0.001 (0.00095)	0.00041 J (0.0012)	0.014 (0.00085)
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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	1 (0.072)	ND (0.086)	0.00016 J (0.0009)	ND (0.0014)	0.0016 (0.0013)	0.00016 J (0.00094)	ND (0.00095)	ND (0.0012)	0.00014 J (0.00085)
Methyl tert-butyl ether	8500	9800	2	ND (0.14)	ND (0.17)	ND (0.0018)	0.0097 (0.0027)	ND (0.0026)	ND (0.0019)	0.0088 (0.0019)	ND (0.0024)	ND (0.0017)
Toluene	10000	10000	100	0.087 (0.072)	0.064 J (0.086)	ND (0.0009)	ND (0.0014)	0.033 J (0.061)	0.00088 J (0.00094)	0.0013 (0.00095)	ND (0.0012)	ND (0.00085)
1,2,4-Trimethylbenzene	4700	5400	300	4.4 (0.14)	ND (0.17)	0.001 J (0.0018)	ND (0.0027)	0.024 J (0.12)	0.00084 J (0.0019)	ND (0.0019)	ND (0.0024)	ND (0.0017)
1,3,5-Trimethylbenzene	4700	5400	93	0.99 (0.14)	ND (0.17)	0.00029 J (0.0018)	ND (0.0027)	0.02 J (0.12)	0.00021 J (0.0019)	ND (0.0019)	ND (0.0024)	ND (0.0017)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	1.1 (0.29)	0.66 (0.34)	0.0063 (0.0036)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.0038)	ND (0.19)	ND (0.2)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-43-07	PB-43-08	PB-43-09	PB-43-10	PB-43-11	PB-43-12	PB-43-13	PB-43-14	PB-43-15			
Field Sample ID	PB-43-07-SS01	PB-43-08-SS01	PB-43-09-SS01	PB-43-10-SS01	PB-43-11-SS01	PB-43-12-SS01	PB-43-13-SS01	PB-43-14-SS01	PB-43-15-SS01			
Collection Depth (ft bgs)	3.5 - 4	3.5 - 4	3 - 3.5	3.5 - 4	3 - 3.5	3 - 3.5	2 - 2.5	3 - 3.5	1.5 - 2			
Sample Date	2/14/2022	2/14/2022	6/25/2021	2/14/2022	2/14/2022	6/25/2021	6/25/2021	6/25/2021	6/25/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.036)	ND (0.00047)	ND (0.00048)	ND (0.033)	ND (0.044)	ND (0.03)	ND (0.03)	ND (0.00046)	ND (0.00071)
Cumene	10000	10000	2500	0.35 (0.072)	0.1 (0.00094)	ND (0.00096)	2.6 (0.065)	0.5 (0.088)	0.059 J (0.06)	0.076 (0.059)	ND (0.00091)	ND (0.0014)
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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.072)	ND (0.00094)	ND (0.00096)	0.16 (0.065)	0.62 (0.088)	ND (0.06)	ND (0.059)	ND (0.00091)	ND (0.0014)
Methyl tert-butyl ether	8500	9800	2	ND (0.14)	0.00024 J (0.0019)	ND (0.0019)	ND (0.13)	ND (0.18)	ND (0.12)	ND (0.12)	ND (0.0018)	ND (0.0028)
Toluene	10000	10000	100	ND (0.072)	0.00075 J (0.00094)	ND (0.00096)	0.042 J (0.065)	ND (0.088)	ND (0.06)	ND (0.059)	ND (0.00091)	ND (0.0014)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.14)	ND (0.0019)	ND (0.0019)	0.16 (0.13)	0.15 J (0.18)	ND (0.12)	0.02 J (0.12)	ND (0.0018)	ND (0.0028)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.14)	0.0004 J (0.0019)	ND (0.0019)	0.066 J (0.13)	0.051 J (0.18)	ND (0.12)	ND (0.12)	ND (0.0018)	ND (0.0028)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.2)	0.34 (0.19)	ND (0.0038)	ND (0.2)	0.24 (0.2)	0.17 J (0.24)	0.2 J (0.24)	ND (0.0036)	ND (0.0057)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-43-16	PB-83-01	PB-83-01R	PB-83-01R	PB-83-02	PB-83-03	PB-83-04	PB-83-05	PB-83-06
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-43-16-SS01	PB-83-01-SS01	PB-83-01R-6.0-6.5	PB-83-01R-14.0-14.5	PB-83-02-SS01	PB-83-03-SS01	PB-83-04-SS01	PB-83-05-SS01	PB-83-06-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	4 - 4.5	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5	3 - 3.5	2.5 - 3	4.5 - 5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	6/25/2021	6/25/2021	2/14/2022	2/14/2022	6/25/2021	6/25/2021	2/14/2022	2/14/2022	2/14/2022
Comments	TDS≤2500											
Volatile Organic Compounds												
Benzene	280	330	0.5	0.0038 (0.00048)	<u>5 (0.064)</u>	<u>1.6 (0.039)</u>	<u>0.9 (0.037)</u>	<u>0.64 (0.032)</u>	ND (0.03)	0.46 (0.032)	0.0035 (0.00052)	0.0037 (0.00053)
Cumene	10000	10000	2500	0.00087 J (0.00097)	9 (0.13)	NA	NA	3 (0.064)	0.012 J (0.061)	4.4 (0.064)	0.12 (0.001)	0.038 (0.001)
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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.00022 J (0.00097)	38 (0.64)	NA	NA	12 (0.064)	0.016 J (0.061)	1 (0.064)	0.0073 (0.001)	0.0013 (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.0019)	ND (0.25)	NA	NA	ND (0.13)	ND (0.12)	ND (0.13)	ND (0.0021)	ND (0.0021)
Toluene	10000	10000	100	ND (0.00097)	0.53 (0.13)	NA	NA	0.24 (0.064)	0.036 J (0.061)	0.082 (0.064)	0.013 (0.001)	0.0043 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	0.0009 J (0.0019)	51 (1.3)	NA	NA	4.8 (0.13)	0.051 J (0.12)	0.21 (0.13)	0.014 (0.0021)	0.0062 (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0019)	19 (0.25)	NA	NA	3.3 (0.13)	0.015 J (0.12)	1.1 (0.13)	0.01 (0.0021)	0.0019 J (0.0021)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0039)	14 (0.51)	NA	NA	1.3 (0.25)	0.044 J (0.24)	ND (0.19)	0.8 (0.2)	ND (1.3)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
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Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-83-07	PB-83-08	PB-83-09	PB-83-10	PB-83-11	PB-83-12	PB-84-01	PB-84-02	PB-84-03			
Field Sample ID	PB-83-07-SS01	PB-83-08-SS01	PB-83-09-SS01	PB-83-10-SS01	PB-83-11-SS01	PB-83-12-SS01	PB-84-01-SS01	PB-84-02-SS01	PB-84-03-SS01			
Collection Depth (ft bgs)	3 - 3.5	2 - 2.5	3 - 3.5	1.5 - 2	4.5 - 5	3 - 3.5	2.5 - 3	1.5 - 2	4 - 4.5			
Sample Date	6/25/2021	6/25/2021	6/25/2021	6/25/2021	2/14/2022	6/25/2021	6/23/2021	6/23/2021	6/23/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.00063)	ND (0.00046)	ND (0.0005)	ND (0.00072)	ND (0.00055)	ND (0.00098)	ND (0.064)	0.027 (0.027)	ND (0.07)
Cumene	10000	10000	2500	ND (0.0013)	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	3.5 (0.13)	2.5 (0.055)	1.9 (0.14)
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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0013)	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	ND (0.13)	0.042 J (0.055)	ND (0.14)
Methyl tert-butyl ether	8500	9800	2	ND (0.0025)	ND (0.0019)	ND (0.002)	ND (0.0029)	ND (0.0022)	ND (0.0039)	ND (0.26)	ND (0.11)	ND (0.28)
Toluene	10000	10000	100	ND (0.0013)	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	ND (0.13)	0.041 J (0.055)	ND (0.14)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0025)	ND (0.0019)	ND (0.002)	ND (0.0029)	0.00078 J (0.0022)	ND (0.0039)	23 (0.26)	0.97 (0.11)	0.79 (0.28)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0025)	ND (0.0019)	ND (0.002)	0.00048 J (0.0029)	0.00021 J (0.0022)	ND (0.0039)	0.49 (0.26)	0.024 J (0.11)	ND (0.28)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0051)	ND (0.0037)	ND (0.004)	ND (0.0058)	1.9 (0.19)	ND (0.0079)	1 (0.51)	0.81 (0.22)	0.55 J (0.56)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
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Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-84-04R	PB-84-04	PB-84-04R	PB-84-05	PB-84-06	PB-84-07	PB-84-08	PB-84-09	PB-84-09			
Field Sample ID	PB-84-04R-0.0-0.5	PB-84-04-SS01	PB-84-04R-6.0-6.5	PB-84-05-SS01	PB-84-06-SS01	PB-84-07-SS01	PB-84-08-SS01	PB-84-09-SS01	PB-84-09-DUP-09			
Collection Depth (ft bgs)	0 - 0.5	3 - 3.5	6 - 6.5	4 - 4.5	3.5 - 4	4.5 - 5	3 - 3.5	0 - 0.5	0 - 0.5			
Sample Date	2/15/2022	6/23/2021	2/15/2022	6/23/2021	6/23/2021	6/23/2021	6/23/2021	6/24/2021	6/24/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	NA	<u>2.1 (0.13)</u>	0.28 (0.031)	ND (0.036)	0.047 (0.025)	ND (0.16)	ND (0.00046)	ND (0.15)	ND (0.17)
Cumene	10000	10000	2500	NA	5.1 (0.26)	NA	0.63 (0.072)	1.3 (0.049)	4.9 (0.32)	0.027 (0.00091)	0.61 (0.31)	0.67 (0.34)
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
Ethanol					NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	15 (0.26)	NA	0.011 J (0.072)	0.014 J (0.049)	0.69 (0.32)	0.00019 J (0.00091)	0.42 (0.31)	0.45 (0.34)
Methyl tert-butyl ether	8500	9800	2	NA	ND (0.52)	NA	ND (0.14)	ND (0.099)	ND (0.64)	ND (0.0018)	ND (0.62)	ND (0.67)
Toluene	10000	10000	100	NA	3 (0.26)	NA	ND (0.072)	ND (0.049)	ND (0.32)	ND (0.00091)	ND (0.31)	ND (0.34)
1,2,4-Trimethylbenzene	4700	5400	300	NA	110 (1)	NA	0.039 J (0.14)	ND (0.099)	ND (0.64)	0.028 (0.0018)	120 (1.2)	100 (1.3)
1,3,5-Trimethylbenzene	4700	5400	93	NA	29 (0.52)	NA	ND (0.14)	ND (0.099)	ND (0.64)	0.0021 (0.0018)	37 (0.62)	37 (0.67)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.2)	<u>74 (1)</u>	ND (0.2)	0.4 (0.29)	0.26 (0.2)	1.2 J (1.3)	0.049 (0.0036)	13 (1.2)	14 (1.3)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
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Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-84-10	PB-84-11	PB-84-12	PB-84-13	PB-84-14	PB-84-14	PB-84-15	PB-84-16	PB-84-17			
Field Sample ID	PB-84-10-SS01	PB-84-11-SS01	PB-84-12-SS01	PB-84-13-SS01	PB-84-14-SS01	DUP-27	PB-84-15-SS01	PB-84-16-SS01	PB-84-17-SS01			
Collection Depth (ft bgs)	1.5 - 2	3 - 3.5	3 - 3.5	3.5 - 4	3 - 3.5	3 - 3.5	2.5 - 3	1 - 1.5	3.5 - 4			
Sample Date	6/24/2021	2/15/2022	6/24/2021	2/15/2022	2/15/2022	2/15/2022	6/24/2021	6/24/2021	2/15/2022			
Comments						FD						
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.00047)	0.00024 J (0.00052)	ND (0.03)	0.00068 (0.00063)	ND (0.0007)	<u>1.4 (0.38)</u>	ND (0.032)	ND (0.035)	0.00028 J (0.0005)
Cumene	10000	10000	2500	ND (0.00094)	0.078 (0.001)	0.13 (0.06)	0.0024 (0.0013)	0.022 (0.0014)	17 (0.76)	0.13 (0.064)	0.024 J (0.07)	0.017 (0.001)
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
Ethanol					NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.00094)	ND (0.001)	ND (0.06)	ND (0.0013)	ND (0.0014)	19 (0.76)	ND (0.064)	0.06 J (0.07)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	ND (0.0019)	ND (0.0021)	ND (0.12)	ND (0.0025)	ND (0.0028)	ND (1.5)	ND (0.13)	ND (0.14)	ND (0.002)
Toluene	10000	10000	100	ND (0.00094)	0.001 (0.001)	ND (0.06)	0.0014 (0.0013)	ND (0.0014)	2.8 (0.76)	ND (0.064)	ND (0.07)	0.0015 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0019)	0.078 (0.0021)	0.084 J (0.12)	ND (0.0025)	ND (0.0028)	<u>530 (7.6)</u>	4.1 (0.13)	2.6 (0.14)	0.001 J (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0019)	0.0009 J (0.0021)	ND (0.12)	ND (0.0025)	ND (0.0028)	<u>130 (1.5)</u>	ND (0.13)	1.6 (0.14)	ND (0.002)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0038)	ND (0.2)	0.23 J (0.24)	0.17 J (0.23)	ND (0.2)	0.34 (0.18)	4.2 (0.26)	0.62 (0.28)	ND (0.2)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-84-18	PB-84-19	PB-85-01	PB-85-02	PB-85-03	PB-85-04	PB-85-05	PB-85-06	PB-85-06R			
Field Sample ID	PB-84-18-SS01	PB-84-19-SS01	PB-85-01-SS01	PB-85-02-SS01	PB-85-03-SS01	PB-85-04-SS01	PB-85-05-SS01	PB-85-06-SS01	PB-85-06R-6.0-6.5			
Collection Depth (ft bgs)	2.5 - 3	3 - 3.5	3.5 - 4	3.5 - 4	4.5 - 5	4 - 4.5	3 - 3.5	4.5 - 5	6 - 6.5			
Sample Date	6/24/2021	6/24/2021	7/12/2021	7/12/2021	7/12/2021	7/12/2021	7/12/2021	7/12/2021	2/10/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.00047)	ND (0.0005)	0.018 (0.00077)	ND (0.00041)	ND (0.031)	ND (0.031)	ND (0.00045)	<u>3.1 (0.15)</u>	<u>18 (0.52)</u>
Cumene	10000	10000	2500	ND (0.00094)	0.0025 (0.001)	0.0016 (0.0015)	ND (0.00082)	0.59 (0.063)	0.073 (0.062)	0.00024 J (0.00091)	0.12 J (0.3)	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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.00094)	ND (0.001)	0.00061 J (0.0015)	ND (0.00082)	ND (0.063)	ND (0.062)	ND (0.00091)	2.6 (0.3)	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.0019)	ND (0.002)	ND (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)	ND (0.6)	NA
Toluene	10000	10000	100	0.00061 J (0.00094)	ND (0.001)	ND (0.0015)	ND (0.00082)	ND (0.063)	ND (0.062)	ND (0.00091)	34 (0.3)	NA
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0019)	0.00034 J (0.002)	ND (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)	1.2 (0.6)	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0019)	ND (0.002)	0.00046 J (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)	0.32 J (0.6)	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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.0038)	ND (0.004)	ND (0.0062)	ND (0.0033)	1.6 (0.25)	0.3 (0.25)	0.0024 J (0.0036)	ND (1.2)	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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-85-06R	PB-85-07	PB-85-08	PB-85-09	PB-85-10	PB-85-11	PB-85-12	PB-85-13	PB-85-14
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-85-06R-14.0-14.5	PB-85-07-SS01	PB-85-08-SS01	PB-85-09-SS01	PB-85-10-SS01	PB-85-11-SS01	PB-85-12-SS01	PB-85-13-SS01	PB-85-14-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	14 - 14.5	4.5 - 5	4.5 - 5	3.5 - 4	3 - 3.5	4 - 4.5	3 - 3.5	3 - 3.5	4 - 4.5
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	2/10/2022	7/12/2021	7/12/2021	2/14/2022	7/12/2021	7/15/2021	7/16/2021	7/12/2021	7/12/2021
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	0.0031 (0.00047)	0.014 J (0.035)	ND (0.031)	<u>1.7 (0.033)</u>	0.038 J (0.04)	ND (0.027)	ND (0.0005)	0.1 (0.043)	0.074 (0.026)
Cumene	10000	10000	2500	NA	2.4 (0.069)	0.028 J (0.062)	2.6 (0.067)	1.8 (0.08)	8.6 (0.054)	0.00033 J (0.001)	0.21 (0.086)	0.71 (0.052)
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
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	NA	ND (0.069)	ND (0.062)	2.8 (0.067)	ND (0.08)	0.026 J (0.054)	ND (0.001)	0.14 (0.086)	0.15 (0.052)
Methyl tert-butyl ether	8500	9800	2	NA	ND (0.14)	ND (0.12)	ND (0.13)	ND (0.16)	ND (0.11)	0.00042 J (0.002)	0.019 J (0.17)	0.014 J (0.1)
Toluene	10000	10000	100	NA	0.08 (0.069)	ND (0.062)	0.7 (0.067)	0.059 J (0.08)	0.083 (0.054)	ND (0.001)	ND (0.086)	ND (0.052)
1,2,4-Trimethylbenzene	4700	5400	300	NA	0.086 J (0.14)	ND (0.12)	0.48 (0.13)	0.11 J (0.16)	ND (0.11)	0.00043 J (0.002)	ND (0.17)	ND (0.1)
1,3,5-Trimethylbenzene	4700	5400	93	NA	0.022 J (0.14)	ND (0.12)	0.62 (0.13)	0.036 J (0.16)	ND (0.11)	ND (0.002)	ND (0.17)	ND (0.1)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	NA	0.34 (0.28)	0.6 (0.25)	0.14 J (0.19)	0.33 (0.32)	0.12 J (0.22)	ND (0.004)	0.21 J (0.34)	0.41 (0.21)
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 are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-85-15	PB-85-16	PB-85-17	PB-128-01	PB-128-02	PB-128-03	PB-128-04	PB-128-05R	PB-128-05			
Field Sample ID	PB-85-15-SS01	PB-85-16-SS01	PB-85-17-SS01	PB-128-01-SS01	PB-128-02-SS01	PB-128-03-SS01	PB-128-04-SS01	PB-128-05R-0.0-0.5	PB-128-05-SS01			
Collection Depth (ft bgs)	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	2.5 - 3	3 - 3.5	3 - 3.5	0 - 0.5	4 - 4.5			
Sample Date	7/26/2021	7/12/2021	7/26/2021	6/22/2021	6/22/2021	6/22/2021	6/22/2021	2/15/2022	6/22/2021			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.17)	ND (0.033)	ND (0.039)	0.15 (0.043)	0.38 (0.044)	ND (0.0011)	<u>1.3 (0.045)</u>	NA	<u>1.4 (0.053)</u>
Cumene	10000	10000	2500	12 (0.33)	1.5 (0.066)	0.28 (0.078)	2.6 (0.085)	0.47 (0.089)	0.0048 (0.0022)	3.5 (0.091)	NA	1.5 (0.1)
1,2-Dibromoethane	3.7	4.2	0.005	NA	NA	NA	ND (0.043)	ND (0.044)	ND (0.0011)	ND (0.045)	NA	ND (0.053)
1,2-Dichloroethane	85	98	0.5	NA	NA	NA	ND (0.085)	ND (0.089)	ND (0.0022)	ND (0.091)	NA	ND (0.1)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.33)	ND (0.066)	ND (0.078)	0.24 (0.085)	0.53 (0.089)	ND (0.0022)	0.16 (0.091)	NA	0.54 (0.1)
Methyl tert-butyl ether	8500	9800	2	ND (0.67)	ND (0.13)	ND (0.16)	ND (0.17)	ND (0.18)	ND (0.0043)	ND (0.18)	NA	ND (0.21)
Toluene	10000	10000	100	ND (0.33)	ND (0.066)	ND (0.078)	0.27 (0.085)	0.18 (0.089)	ND (0.0022)	0.32 (0.091)	NA	1.3 (0.1)
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.67)	ND (0.13)	0.036 J (0.16)	42 (0.43)	0.32 (0.18)	ND (0.0043)	0.2 (0.18)	NA	3.9 (0.21)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.67)	ND (0.13)	ND (0.16)	2.1 (0.17)	0.069 J (0.18)	ND (0.0043)	0.051 J (0.18)	NA	1.5 (0.21)
Xylenes (total)	7900	9100	1000	NA	NA	NA	17.088 J (0.17)	0.63 J (0.18)	0.0026 J (0.0043)	0.89 J (0.18)	NA	6.23 J (0.21)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.95 J (1.3)	0.38 (0.26)	0.28 J (0.31)	3.1 (0.34)	1.2 (0.36)	ND (0.0087)	0.44 (0.36)	NA	1 (0.42)
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	<u>1980 (2.46)</u>	361 (2.55)	9.84 (2.6)	310 (2.32)	6.38 (2.01)	<u>1070 (2.57)</u>

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1

Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location	PB-128-05	PB-128-05R	PB-128-05R	PB-128-06	PB-128-07	PB-128-08	PB-128-09	PB-128-10	PB-128-11			
Field Sample ID	DUP-08	PB-128-05R-6.0-6.5	PB-128-05R-14.0-14.5	PB-128-06-SS01	PB-128-07-SS01	PB-128-08-SS01	PB-128-09-SS01	PB-128-10-SS01	PB-128-11-SS01			
Collection Depth (ft bgs)	4 - 4.5	6 - 6.5	14 - 14.5	3 - 3.5	3 - 3.5	4.5 - 5	3.5 - 4	3 - 3.5	3 - 3.5			
Sample Date	6/22/2021	2/15/2022	2/15/2022	2/16/2022	2/16/2022	6/23/2021	2/16/2022	2/16/2022	2/16/2022			
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>1.2 (0.049)</u>	0.11 (0.051)	NA	ND (0.00059)	ND (0.00048)	ND (0.00081)	ND (0.00089)	ND (0.00083)	0.00022 J (0.00062)
Cumene	10000	10000	2500	1.9 (0.098)	NA	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	0.00038 J (0.0018)	ND (0.0017)	0.00062 J (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.049)	NA	NA	ND (0.00059)	ND (0.00048)	ND (0.00081)	ND (0.00089)	ND (0.00083)	ND (0.00062)
1,2-Dichloroethane	85	98	0.5	ND (0.098)	NA	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	ND (0.0018)	ND (0.0017)	ND (0.0012)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.52 (0.098)	NA	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	ND (0.0018)	ND (0.0017)	ND (0.0012)
Methyl tert-butyl ether	8500	9800	2	ND (0.2)	NA	NA	ND (0.0024)	ND (0.0019)	ND (0.0032)	ND (0.0036)	ND (0.0033)	ND (0.0025)
Toluene	10000	10000	100	1 (0.098)	NA	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	0.0016 J (0.0018)	0.0016 J (0.0017)	0.013 (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	8.4 (0.2)	NA	NA	0.0008 J (0.0024)	0.00094 J (0.0019)	0.0006 J (0.0032)	0.22 (0.0036)	0.0008 J (0.0033)	1.4 (0.18)
1,3,5-Trimethylbenzene	4700	5400	93	3.6 (0.2)	NA	NA	0.00067 J (0.0024)	0.0031 (0.0019)	ND (0.0032)	0.13 (0.0036)	0.00039 J (0.0033)	0.58 (0.18)
Xylenes (total)	7900	9100	1000	6.74 J (0.2)	NA	NA	0.00129 J (0.0024)	ND (0.0019)	0.00174 J (0.0032)	0.29 J (0.0036)	0.002 J (0.0033)	1.68 J (0.18)
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
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	1.6 (0.39)	NA	NA	0.23 (0.18)	0.26 (0.17)	0.0019 J (0.0065)	0.09 J (0.17)	ND (0.17)	0.75 (0.17)
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	<u>1470 (2.55)</u>	<u>1780 (2.6)</u>	38.1 (3.8)	3.93 (2.09)	4.59 (2.01)	<u>844 (2.66)</u>	3.72 (2.01)	3.28 (1.99)	5.49 (2.06)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-128-12	PB-128-13	PB-128-14	PB-128-15	PB-128-15	PB-128-16	PB-129-01R	PB-129-01	PB-129-01R			
Field Sample ID	PB-128-12-SS01	PB-128-13-SS01	PB-128-14-SS01	PB-128-15-SS01	DUP-28	PB-128-16-SS01	PB-129-01R-0.0-0.5	PB-129-01-SS01	PB-129-01R-6.0-6.5			
Collection Depth (ft bgs)	2.5 - 3	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	0 - 0.5	4 - 4.5	6 - 6.5			
Sample Date	2/16/2022	6/23/2021	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/15/2022	6/23/2021	2/15/2022			
Comments	FD											
Volatile Organic Compounds												
Benzene	280	330	0.5	ND (0.00091)	0.00041 J (0.00044)	ND (0.00079)	0.0037 (0.00081)	ND (0.00064)	0.00028 J (0.00049)	NA	0.17 J (0.2)	NA
Cumene	10000	10000	2500	ND (0.0018)	ND (0.00087)	ND (0.0016)	ND (0.0016)	ND (0.0013)	ND (0.00099)	NA	0.54 (0.4)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00091)	ND (0.00044)	ND (0.00079)	ND (0.00081)	ND (0.00064)	ND (0.00049)	NA	ND (0.2)	NA
1,2-Dichloroethane	85	98	0.5	ND (0.0018)	ND (0.00087)	ND (0.0016)	ND (0.0016)	ND (0.0013)	ND (0.00099)	NA	ND (0.4)	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0018)	0.00048 J (0.00087)	ND (0.0016)	0.00033 J (0.0016)	ND (0.0013)	ND (0.00099)	NA	ND (0.4)	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.0036)	ND (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)	ND (0.002)	NA	ND (0.79)	NA
Toluene	10000	10000	100	ND (0.0018)	0.00049 J (0.00087)	ND (0.0016)	0.012 (0.0016)	ND (0.0013)	0.0006 J (0.00099)	NA	0.33 J (0.4)	NA
1,2,4-Trimethylbenzene	4700	5400	300	ND (0.0036)	0.0022 (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)	ND (0.002)	NA	5.4 (0.79)	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0036)	0.0025 (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)	ND (0.002)	NA	1.4 (0.79)	NA
Xylenes (total)	7900	9100	1000	ND (0.0036)	0.0043 J (0.0017)	ND (0.0032)	0.00493 J (0.0032)	ND (0.0026)	0.00134 J (0.002)	NA	345.7 J (1.6)	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	NA	NA	NA	NA	NA	NA	NA	0.42 J (0.84)	NA
Benzo(a)anthracene	130	190000	340	NA	NA	NA	NA	NA	NA	NA	2.6 (0.84)	NA
Benzo(a)pyrene	91	190000	46	NA	NA	NA	NA	NA	NA	NA	4.2 (1.1)	NA
Benzo(b)fluoranthene	76	190000	170	NA	NA	NA	NA	NA	NA	NA	4.6 (0.84)	NA
Benzo(g,h,i)perylene	190000	190000	180	NA	NA	NA	NA	NA	NA	NA	3.5 (1.1)	NA
Chrysene	760	190000	230	NA	NA	NA	NA	NA	NA	NA	2.9 (0.84)	NA
Fluorene	130000	190000	3800	NA	NA	NA	NA	NA	NA	NA	0.34 J (1.4)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.17)	ND (0.0035)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.004)	NA	0.5 J (1.4)	NA
Phenanthrene	190000	190000	10000	NA	NA	NA	NA	NA	NA	NA	1 (0.84)	NA
Pyrene	96000	190000	2200	NA	NA	NA	NA	NA	NA	NA	2.7 (0.84)	NA
Metals												
Lead	1000	190000	450	5.7 (1.99)	3.88 (2.08)	5.42 (2.06)	13.5 (2.04)	7.64 (2.05)	182 (2.04)	231 (2.69)	<u>3920 (6.81)</u>	202 (2.52)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location				PB-129-02	PB-129-03	PB-129-04	PB-129-05	PB-129-06	PB-129-07	PB-129-08	PB-129-09	PB-129-10
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-129-02-SS01	PB-129-03-SS01	PB-129-04-SS01	PB-129-05-SS01	PB-129-06-SS01	PB-129-07-SS01	PB-129-08-SS01	PB-129-09-SS01	PB-129-10-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	4.5 - 5	4 - 4.5	3 - 3.5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	3.5 - 4
Sample Date	Surface Soil MSCs	Subsurface Soil	Aquifer	6/23/2021	6/23/2021	6/23/2021	6/23/2021	6/23/2021	2/16/2022	2/16/2022	2/16/2022	2/16/2022
Comments	MSCs			TDS≤2500								
Volatile Organic Compounds												
Benzene	280	330	0.5	<u>0.6 (0.054)</u>	<u>0.96 (0.048)</u>	0.0084 (0.00045)	0.32 (0.023)	ND (0.59)	ND (0.00056)	ND (0.00067)	ND (0.00047)	ND (1.5)
Cumene	10000	10000	2500	0.042 J (0.11)	7.1 (0.096)	0.0032 (0.0009)	0.0094 J (0.046)	14 (1.2)	ND (0.0011)	ND (0.0013)	ND (0.00095)	26 (3)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.054)	ND (0.048)	ND (0.00045)	ND (0.00056)	ND (0.59)	ND (0.00056)	ND (0.00067)	ND (0.00047)	ND (1.5)
1,2-Dichloroethane	85	98	0.5	ND (0.11)	ND (0.096)	ND (0.0009)	ND (0.0011)	ND (1.2)	ND (0.0011)	ND (0.0013)	ND (0.00095)	ND (3)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.075 J (0.11)	3.6 (0.096)	0.00036 J (0.0009)	0.041 (0.0011)	<u>230 (1.2)</u>	ND (0.0011)	ND (0.0013)	ND (0.00095)	<u>170 (3)</u>
Methyl tert-butyl ether	8500	9800	2	ND (0.22)	0.019 J (0.19)	ND (0.0018)	ND (0.0022)	ND (2.4)	ND (0.0022)	ND (0.0027)	ND (0.0019)	ND (6)
Toluene	10000	10000	100	0.14 (0.11)	0.45 (0.096)	ND (0.0009)	0.45 (0.046)	<u>250 (4.8)</u>	ND (0.0011)	ND (0.0013)	ND (0.00095)	23 (3)
1,2,4-Trimethylbenzene	4700	5400	300	0.16 J (0.22)	44 (0.38)	0.38 (0.093)	0.17 (0.093)	<u>390 (9.5)</u>	ND (0.0022)	ND (0.0027)	ND (0.0019)	<u>1000 (15)</u>
1,3,5-Trimethylbenzene	4700	5400	93	0.082 J (0.22)	21 (0.19)	0.14 (0.0018)	0.02 J (0.093)	<u>170 (2.4)</u>	ND (0.0022)	ND (0.0027)	ND (0.0019)	<u>310 (6)</u>
Xylenes (total)	7900	9100	1000	0.26 J (0.22)	6.1 J (0.19)	0.00225 J (0.0018)	0.153 J (0.093)	<u>1360 J (9.5)</u>	ND (0.0022)	ND (0.0027)	ND (0.0019)	<u>1640 J (6)</u>
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	ND (1.2)	2.7 J (3.3)	ND (0.1)	ND (0.1)	0.039 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(a)anthracene	130	190000	340	0.4 J (1.2)	4.7 (3.3)	ND (0.1)	ND (0.1)	0.022 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(a)pyrene	91	190000	46	ND (1.7)	2.9 J (4.4)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	ND (1.2)	4.4 (3.3)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(g,h,i)perylene	190000	190000	180	1.2 J (1.7)	1.8 J (4.4)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Chrysene	760	190000	230	0.48 J (1.2)	9 (3.3)	ND (0.1)	ND (0.1)	0.019 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Fluorene	130000	190000	3800	ND (2.1)	2.4 J (5.5)	ND (0.17)	ND (0.17)	0.12 J (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	0.027 J (0.17)
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	0.77 J (2.1)	7.2 (5.5)	0.37 (0.17)	ND (0.17)	9.4 (0.87)	ND (0.17)	ND (0.17)	ND (0.18)	1.4 (0.17)
Phenanthrene	190000	190000	10000	0.6 J (1.2)	12 (3.3)	0.022 J (0.1)	ND (0.1)	0.27 (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.055 J (0.1)
Pyrene	96000	190000	2200	0.78 J (1.2)	9.8 (3.3)	ND (0.1)	ND (0.1)	0.093 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.021 J (0.1)
Metals												
Lead	1000	190000	450	175 (2.49)	119 (2.34)	2.92 (2.04)	4.81 (2.06)	4.44 (2.03)	3.99 (2.04)	4.34 (2.04)	3.6 (2.03)	3.98 (2.04)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-129-11	PB-129-12	PB-129-13	PB-129-14	PB-129-15	PB-129-16	PB-129-17	PB-129-18	PB-204-01R			
Field Sample ID	PB-129-11-SS01	PB-129-12-SS01	PB-129-13-SS01	PB-129-14-SS01	PB-129-15-SS01	PB-129-16-SS01	PB-129-17-SS01	PB-129-18-6.0-6.5	PB-204-01R-0.0-0.5			
Collection Depth (ft bgs)	3 - 3.5	4.5 - 5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	6 - 6.5	0 - 0.5			
Sample Date	2/16/2022	2/16/2022	2/16/2022	6/23/2021	6/23/2021	2/16/2022	6/23/2021	2/15/2022	2/7/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.0028 (0.00079)	ND (0.00054)	ND (0.0005)	ND (0.023)	ND (0.00053)	ND (0.00064)	ND (0.00059)	0.048 (0.031)	NA
Cumene	10000	10000	2500	ND (0.0016)	ND (0.0011)	ND (0.00099)	0.36 (0.047)	ND (0.0011)	ND (0.0013)	ND (0.0012)	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.00079)	ND (0.00054)	ND (0.0005)	ND (0.023)	ND (0.00053)	ND (0.00064)	ND (0.00059)	NA	NA
1,2-Dichloroethane	85	98	0.5	ND (0.0016)	ND (0.0011)	ND (0.00099)	ND (0.047)	ND (0.0011)	ND (0.0013)	ND (0.0012)	NA	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.0016)	ND (0.0011)	ND (0.00099)	0.042 J (0.047)	ND (0.0011)	ND (0.0013)	ND (0.0012)	0.29 (0.062)	NA
Methyl tert-butyl ether	8500	9800	2	ND (0.0032)	ND (0.0021)	ND (0.002)	ND (0.093)	ND (0.0021)	ND (0.0026)	ND (0.0024)	NA	NA
Toluene	10000	10000	100	ND (0.0016)	ND (0.0011)	ND (0.00099)	ND (0.047)	ND (0.0011)	ND (0.0013)	ND (0.0012)	0.082 (0.062)	NA
1,2,4-Trimethylbenzene	4700	5400	300	0.0007 J (0.0032)	ND (0.0021)	ND (0.002)	12 (0.093)	ND (0.0021)	0.00063 J (0.0026)	ND (0.0024)	3.9 (0.12)	NA
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.0032)	ND (0.0021)	ND (0.002)	3 (0.093)	ND (0.0021)	ND (0.0026)	ND (0.0024)	0.78 (0.12)	NA
Xylenes (total)	7900	9100	1000	ND (0.0032)	ND (0.0021)	ND (0.002)	0.166 J (0.093)	ND (0.0021)	ND (0.0026)	ND (0.0024)	1 J (0.12)	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Benzo(a)anthracene	130	190000	340	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Benzo(a)pyrene	91	190000	46	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	NA	NA
Benzo(b)fluoranthene	76	190000	170	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	NA	NA
Chrysene	760	190000	230	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Fluorene	130000	190000	3800	ND (0.17)	ND (0.17)	ND (0.17)	0.019 J (0.18)	ND (0.18)	ND (0.17)	ND (0.17)	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	ND (0.17)	ND (0.17)	ND (0.17)	1.4 (0.18)	ND (0.18)	ND (0.17)	ND (0.17)	NA	NA
Phenanthrene	190000	190000	10000	ND (0.1)	ND (0.1)	ND (0.1)	0.025 J (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Pyrene	96000	190000	2200	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.1)	NA	NA
Metals												
Lead	1000	190000	450	4.77 (2.03)	3.99 (2.04)	2.65 (1.97)	5.74 (2.02)	5.84 (2.03)	3.41 (1.99)	36.1 (2.11)	NA	61.6 (2.32)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results
Tank Group 02

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

Location	PB-204-01	PB-204-01R	PB-204-02	PB-204-03	PB-204-04	PB-204-05	PB-204-06R	PB-204-06	PB-204-06R			
Field Sample ID	PB-204-01-SS01	PB-204-01R-6.0-6.5	PB-204-02-SS01	PB-204-03-SS01	PB-204-04-SS01	PB-204-05-SS01	PB-204-06R-0.0-0.5	PB-204-06-SS01	PB-204-06R-6.0-6.5			
Collection Depth (ft bgs)	4.5 - 5	6 - 6.5	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	0 - 0.5	3 - 3.5	6 - 6.5			
Sample Date	10/4/2021	2/7/2022	10/4/2021	10/4/2021	10/4/2021	10/4/2021	2/7/2022	10/4/2021	2/7/2022			
Comments												
Volatile Organic Compounds												
Benzene	280	330	0.5	0.46 (0.14)	NA	ND (0.033)	0.12 (0.12)	0.12 (0.031)	<u>0.75 (0.034)</u>	NA	<u>2.3 (0.066)</u>	0.036 (0.00048)
Cumene	10000	10000	2500	38 (0.28)	NA	3.1 (0.067)	7.2 (0.25)	2.8 (0.063)	5.6 (0.069)	NA	6.7 (0.13)	NA
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.14)	NA	ND (0.033)	ND (0.12)	ND (0.031)	ND (0.034)	NA	<u>0.043 J (0.066)</u>	NA
1,2-Dichloroethane	85	98	0.5	ND (0.28)	NA	ND (0.067)	ND (0.25)	0.043 J (0.063)	ND (0.069)	NA	ND (0.13)	NA
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	0.52 (0.28)	NA	ND (0.067)	0.13 J (0.25)	0.21 (0.063)	0.75 (0.069)	NA	9.6 (0.13)	NA
Methyl tert-butyl ether	8500	9800	2	0.089 J (0.55)	NA	ND (0.13)	ND (0.5)	ND (0.12)	ND (0.14)	NA	0.1 J (0.26)	NA
Toluene	10000	10000	100	0.39 (0.28)	NA	ND (0.067)	0.24 J (0.25)	0.065 (0.063)	0.59 (0.069)	NA	ND (0.13)	NA
1,2,4-Trimethylbenzene	4700	5400	300	0.83 (0.55)	NA	0.046 J (0.13)	0.12 J (0.5)	0.084 J (0.12)	2.4 (0.14)	NA	47 (0.53)	NA
1,3,5-Trimethylbenzene	4700	5400	93	0.11 J (0.55)	NA	ND (0.13)	0.13 J (0.5)	0.76 (0.12)	7.7 (0.14)	NA	0.67 (0.26)	NA
Xylenes (total)	7900	9100	1000	1 J (0.55)	NA	ND (0.13)	0.297 J (0.5)	0.238 J (0.12)	4.41 J (0.14)	NA	4.18 J (0.26)	NA
Semi-Volatile Organic Compounds												
Anthracene	190000	190000	350	0.067 J (0.081)	NA	0.0051 J (0.0082)	0.027 (0.0081)	0.0048 J (0.0078)	0.0019 J (0.0081)	NA	0.083 J (0.42)	NA
Benzo(a)anthracene	130	190000	340	0.098 (0.081)	NA	0.0068 J (0.0082)	0.03 (0.0081)	0.0028 J (0.0078)	0.0014 J (0.0081)	NA	0.074 J (0.42)	NA
Benzo(a)pyrene	91	190000	46	0.097 (0.081)	NA	0.004 J (0.0082)	0.029 (0.0081)	0.0014 J (0.0078)	ND (0.0081)	NA	0.062 J (0.42)	NA
Benzo(b)fluoranthene	76	190000	170	0.14 (0.081)	NA	0.0056 J (0.0082)	0.036 (0.0081)	0.0024 J (0.0078)	0.00098 J (0.0081)	NA	0.083 J (0.42)	NA
Benzo(g,h,i)perylene	190000	190000	180	0.1 (0.081)	NA	0.0025 J (0.0082)	0.024 (0.0081)	0.0023 J (0.0078)	0.00069 J (0.0081)	NA	0.089 J (0.42)	NA
Chrysene	760	190000	230	0.11 (0.081)	NA	0.0053 J (0.0082)	0.026 (0.0081)	0.0029 J (0.0078)	0.00098 J (0.0081)	NA	0.055 J (0.42)	NA
Fluorene	130000	190000	3800	0.58 (0.081)	NA	0.018 (0.0082)	0.092 (0.0081)	0.019 (0.0078)	0.0079 J (0.0081)	NA	0.34 J (0.42)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	0.096 (0.081)	NA	0.0027 J (0.0082)	0.022 (0.0081)	0.0015 J (0.0078)	ND (0.0081)		0.085 J (0.42)	NA
Naphthalene	66	77	25	0.52 (0.081)	NA	0.024 (0.0082)	0.18 (0.0081)	0.067 (0.0078)	0.068 (0.0081)	ND (0.21)	<u>31 (0.42)</u>	ND (0.2)
Phenanthrene	190000	190000	10000	0.88 (0.081)	NA	0.021 (0.0082)	0.13 (0.0081)	0.021 (0.0078)	0.013 (0.0081)	NA	0.64 (0.42)	NA
Pyrene	96000	190000	2200	0.18 (0.081)	NA	0.012 (0.0082)	0.056 (0.0081)	0.0093 (0.0078)	0.0031 J (0.0081)	NA	0.19 J (0.42)	NA
Metals												
Lead	1000	190000	450	<u>540 (12.2)</u>	9.16 J (11.9)	8.75 (2.39)	10.6 (2.42)	7.64 (2.35)	8.38 (4.71)	NA	94.9 (2.42)	NA

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G1
Summary of PESRM Soil Analytical Results

Tank Group 02

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

Location				PB-204-07	PB-204-08	PB-204-09	PB-204-10	PB-204-11	PB-204-11R	PB-204-12	PB-204-13
Field Sample ID	Non-Res Direct	Non-Res Direct	Non-Res Soil-to-	PB-204-07-SS01	PB-204-08-SS01	PB-204-09-SS01	PB-204-10-SS01	PB-204-11-SS01	PB-204-11R-6.0-6.5	PB-204-12-SS01	PB-204-13-SS01
Collection Depth (ft bgs)	Contact with	Contact with	GW MSCs Used	3 - 3.5	3 - 3.5	3 - 3.5	3 - 3.5	4.5 - 5	6 - 6.5	4.5 - 5	3 - 3.5
Sample Date	Surface Soil MSCs	Subsurface Soil MSCs	Aquifer	10/4/2021	10/4/2021	10/4/2021	10/4/2021	10/4/2021	2/7/2022	10/4/2021	10/4/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	ND (0.03)	0.16 (0.028)	0.058 (0.03)	0.24 (0.00047)	0.23 (0.13)	NA	<u>1.8 (0.24)</u>	0.019 J (0.034)
Cumene	10000	10000	2500	0.19 (0.06)	2.6 (0.057)	2.4 (0.06)	0.043 (0.00093)	5.1 (0.26)	NA	19 (0.47)	2.7 (0.067)
1,2-Dibromoethane	3.7	4.2	0.005	ND (0.03)	ND (0.028)	ND (0.03)	ND (0.00047)	<u>0.08 J (0.13)</u>	ND (0.034)	ND (0.24)	ND (0.034)
1,2-Dichloroethane	85	98	0.5	ND (0.06)	ND (0.057)	ND (0.06)	ND (0.00093)	ND (0.26)	NA	ND (0.47)	ND (0.067)
Ethanol				NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	ND (0.06)	0.42 (0.057)	0.11 (0.06)	0.085 (0.00093)	0.16 J (0.26)	NA	1.7 (0.47)	0.19 (0.067)
Methyl tert-butyl ether	8500	9800	2	ND (0.12)	1 (0.11)	0.018 J (0.12)	0.069 (0.0019)	1.6 (0.52)	NA	0.4 J (0.95)	ND (0.13)
Toluene	10000	10000	100	ND (0.06)	0.063 (0.057)	0.046 J (0.06)	0.097 (0.00093)	0.2 J (0.26)	NA	4 (0.47)	0.061 J (0.067)
1,2,4-Trimethylbenzene	4700	5400	300	0.022 J (0.12)	5.3 (0.11)	0.024 J (0.12)	0.061 (0.0019)	0.31 J (0.52)	NA	2 (0.95)	0.37 (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	ND (0.12)	7.6 (0.11)	0.14 (0.12)	0.1 (0.0019)	0.065 J (0.52)	NA	0.76 J (0.95)	1.4 (0.13)
Xylenes (total)	7900	9100	1000	ND (0.12)	0.438 J (0.11)	0.08 J (0.12)	0.588 J (0.0019)	0.38 J (0.52)	NA	5.17 J (0.95)	0.518 J (0.13)
Semi-Volatile Organic Compounds											
Anthracene	190000	190000	350	0.0024 J (0.0079)	0.0034 J (0.0081)	0.0047 J (0.0079)	0.0015 J (0.0081)	0.083 (0.0082)	NA	0.016 (0.0085)	0.0039 J (0.0082)
Benzo(a)anthracene	130	190000	340	0.0043 J (0.0079)	0.0033 J (0.0081)	0.0046 J (0.0079)	0.0063 J (0.0081)	0.15 (0.0082)	NA	0.01 (0.0085)	0.0012 J (0.0082)
Benzo(a)pyrene	91	190000	46	0.0046 J (0.0079)	0.0024 J (0.0081)	0.0021 J (0.0079)	0.01 (0.0081)	0.13 (0.0082)	NA	0.0064 J (0.0085)	ND (0.0082)
Benzo(b)fluoranthene	76	190000	170	0.0057 J (0.0079)	0.003 J (0.0081)	0.0026 J (0.0079)	0.011 (0.0081)	0.17 (0.0082)	NA	0.0096 (0.0085)	ND (0.0082)
Benzo(g,h,i)perylene	190000	190000	180	0.004 J (0.0079)	0.0018 J (0.0081)	0.0012 J (0.0079)	0.0083 (0.0081)	0.079 (0.0082)	NA	0.012 (0.0085)	ND (0.0082)
Chrysene	760	190000	230	0.0034 J (0.0079)	0.0028 J (0.0081)	0.0034 J (0.0079)	0.0049 J (0.0081)	0.12 (0.0082)	NA	0.013 (0.0085)	0.00074 J (0.0082)
Fluorene	130000	190000	3800	0.0078 J (0.0079)	0.018 (0.0081)	0.019 (0.0079)	0.0022 J (0.0081)	0.1 (0.0082)	NA	0.093 (0.0085)	0.036 (0.0082)
Indeno(1,2,3-cd)pyrene	76	190000	18000	0.0044 J (0.0079)	0.0018 J (0.0081)	0.0012 J (0.0079)	0.0099 (0.0081)	0.092 (0.0082)	NA	0.0053 J (0.0085)	ND (0.0082)
Naphthalene	66	77	25	0.043 (0.0079)	0.012 (0.0081)	0.026 (0.0079)	0.0046 J (0.0081)	0.092 (0.0082)	NA	0.62 (0.0085)	0.02 (0.0082)
Phenanthrene	190000	190000	10000	0.011 (0.0079)	0.024 (0.0081)	0.029 (0.0079)	0.0056 J (0.0081)	0.3 (0.0082)	NA	0.087 (0.0085)	0.057 (0.0082)
Pyrene	96000	190000	2200	0.007 J (0.0079)	0.0071 J (0.0081)	0.01 (0.0079)	0.0059 J (0.0081)	0.26 (0.0082)	NA	0.039 (0.0085)	0.0043 J (0.0082)
Metals											
Lead	1000	190000	450	33.4 (2.36)	7.27 (2.35)	7.42 (4.79)	6.7 (2.42)	91.2 (2.38)	NA	103 (2.61)	5.54 (2.48)

Notes:

- 1 All concentrations are presented in mg/kg (ppm). Detection limits are in parentheses.
- 2 Boldfaced and grey shaded concentrations exceed the Non-Res Direct Contact with Soil MSCs.
- 3 Underlined concentrations exceed the Non-Res Soil-to-GW MSCs Used Aquifer TDS≤2500.

Abbreviations:

- ND -- Not Detected.
- NA -- Not Analyzed.
- J -- Estimated Concentration.
- B -- Analyte was detected in associated method blank.

Table G2
Summary of QAQC Analytical Results
Tank Group 02

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

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-210607-1	FB-210607-2	TB-210607	FB-210608-1	FB-210608-2	TB-210608	FB-210609-1	FB-210609-2	FB-210610-1	FB-210610-2	TB-210610	FB-210611-1	FB-210611-2	TB-210611
Sample Date	6/7/2021	6/7/2021	6/7/2021	6/8/2021	6/8/2021	6/8/2021	6/9/2021	6/9/2021	6/10/2021	6/10/2021	6/10/2021	6/11/2021	6/11/2021	6/11/2021
Comments	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	NA	NA	0.02 J (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	0.03 J (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	0.02 J (0.05)	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	0.04 J (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	0.03 J (0.1)	NA	NA	NA	NA
Naphthalene	ND (1)	ND (1)	ND (1)	0.24 J (1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)
Phenanthrene	NA	NA	NA	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA
Metals														
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA

Notes:

- 1 All concentrations are presented in ug/L (ppb). Detection limits are in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

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

Table G2
Summary of QAQC Analytical Results
Tank Group 02

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

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-210621-1	FB-210621-2	TB-210621	FB-210622-1	FB-210622-2	TB-210522	FB-210623-1	FB-210623-2	TB-210623	FB-210624-1	FB-210624-2	TB-210624	FB-210625	TB-210625	
Sample Date	6/21/2021	6/21/2021	6/21/2021	6/22/2021	6/22/2021	6/22/2021	6/23/2021	6/23/2021	6/23/2021	6/24/2021	6/24/2021	6/24/2021	6/25/2021	6/25/2021	
Comments	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	
Volatile Organic Compounds															
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds															
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	ND (0.05)	0.02 J (0.05)	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	ND (0.1)	0.03 J (0.1)	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (0.1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Phenanthrene	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Metals															
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations are presented in ug/L (ppb). Detection limits are in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

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

Table G2
Summary of QAQC Analytical Results
Tank Group 02

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

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-210712	TB-210712	FB-210714-1	FB-210714-2	TB-210714	FB-210716-1	FB-210716-2	TB-210716	FB-210726	TB-210726	FB-210727	TB-210727	FB-211004	TB-211004
Sample Date	7/12/2021	7/12/2021	7/14/2021	7/14/2021	7/14/2021	7/16/2021	7/16/2021	7/16/2021	7/26/2021	7/26/2021	7/27/2021	7/27/2021	10/4/2021	10/4/2021
Comments	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Trip Blank
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	NA	NA	0.2 J (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Benzo(b)fluoranthene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	NA
Benzo(g,h,i)perylene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Naphthalene	ND (1)	ND (1)	ND (0.1)	ND (0.1)	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.07 J (0.1)	NA
Phenanthrene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	NA
Pyrene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Metals														
Lead	NA	NA	ND (3)	ND (3)	NA	ND (3)	ND (3)	NA	NA	NA	ND (3)	NA	ND (1)	NA

Notes:

- 1 All concentrations are presented in ug/L (ppb). Detection limits are in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

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

Table G2
Summary of QAQC Analytical Results
Tank Group 02

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

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-211005-1	FB-211005-2	TB-211005	FB-211006-1	FB-211006-2	TB-211006	FB-220207-1	FB-220207-2	TB-220207	FB-220208-1	FB-220208-2	TB-220208	FB-220209	TB-220209	
Sample Date	10/5/2021	10/5/2021	10/5/2021	10/6/2021	10/6/2021	10/6/2021	2/7/2022	2/7/2022	2/7/2022	2/8/2022	2/8/2022	2/8/2022	2/9/2022	2/9/2022	
Comments	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	
Volatile Organic Compounds															
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA	NA	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	
Semi-Volatile Organic Compounds															
Benzo(a)pyrene	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	
Benzo(b)fluoranthene	ND (0.05)	0.01 J (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	
Benzo(g,h,i)perylene	ND (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.5)	ND (0.5)	NA	ND (0.5)	NA	
Naphthalene	ND (0.1)	0.05 J (0.1)	NA	ND (0.1)	0.06 J (0.1)	NA	0.05 J (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	
Phenanthrene	ND (0.05)	0.05 J (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	
Pyrene	ND (0.1)	0.02 J (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	
Metals															
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	NA	

Notes:

- 1 All concentrations are presented in ug/L (ppb). Detection limits are in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

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

Table G2
Summary of QAQC Analytical Results
Tank Group 02

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

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-220210	TB-220210	FB-220211	TB-220211	FB-220214	TB-220214	FB-220215	TB-220215	FB-220216-1	FB-220216-2	TB-220216	QAQC
Sample Date	2/10/2022	2/10/2022	2/11/2022	2/11/2022	2/14/2022	2/14/2022	2/15/2022	2/15/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022
Comments	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Trip Blank
Volatile Organic Compounds												
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds												
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA
Naphthalene	ND (0.1)	NA	ND (0.1)	NA	ND (0.1)	NA	ND (0.1)	NA	NA	ND (0.1)	ND (0.1)	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA
Metals												
Lead	ND (1)	NA	0.6813 J (1)	NA	NA	NA	NA	NA	NA	ND (1)	ND (1)	NA

Notes:

- 1 All concentrations are presented in ug/L (ppb). Detection limits are in parentheses.
- 2 Only compounds with at least one detection are shown.

Abbreviations:

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

Appendix H

Laboratory Reports





ANALYTICAL REPORT

Lab Number:	L2130480
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/01/21

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: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130480-01	PB26-01-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:35	06/07/21
L2130480-02	PB26-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:45	06/07/21
L2130480-03	PB26-03-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:55	06/07/21
L2130480-04	PB26-04-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:10	06/07/21
L2130480-05	PB26-05-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:20	06/07/21
L2130480-06	PB26-06-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:35	06/07/21
L2130480-07	PB26-07-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:45	06/07/21
L2130480-08	PB26-08-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:00	06/07/21
L2130480-09	PB26-09-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:15	06/07/21
L2130480-10	PB26-10-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:30	06/07/21
L2130480-11	PB26-11-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:50	06/07/21
L2130480-12	PB26-12-SS01	SOIL	PHILADELPHIA, PA	06/07/21 12:00	06/07/21
L2130480-13	PB26-13-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:10	06/07/21
L2130480-14	PB26-14-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:20	06/07/21
L2130480-15	PB26-15-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:30	06/07/21
L2130480-16	PB26-16-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:40	06/07/21
L2130480-17	PB27-01-SS01	SOIL	PHILADELPHIA, PA	06/07/21 14:40	06/07/21
L2130480-18	PB27-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 14:45	06/07/21
L2130480-19	FB-210607-1	WATER	PHILADELPHIA, PA	06/07/21 14:20	06/07/21
L2130480-20	FB-210607-2	WATER	PHILADELPHIA, PA	06/07/21 14:50	06/07/21
L2130480-21	TB	WATER	PHILADELPHIA, PA	06/07/21 00:00	06/07/21

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Case Narrative (continued)

Report Revision

July 01, 2021: The Volatile Organics analyte list has been amended on L2130480-17, -18, -19, -20 and -21.

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 analyses performed were specified by the client.

Volatile Organics

L2130480-17D: The internal standard (IS) response(s) for fluorobenzene (232%) and the surrogate recovery for dibromofluoromethane (54%) and 4-bromofluorobenzene (279%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias.

L2130480-17D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130480-18D: The internal standard (IS) response(s) for fluorobenzene (204%) and the surrogate recovery for dibromofluoromethane (64%) and 4-bromofluorobenzene (165%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, since the IS response was above

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Case Narrative (continued)

method criteria, all associated compounds are considered to have a potentially low bias.

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: 07/01/21

ORGANICS

VOLATILES

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-01
 Client ID: PB26-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:35
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 17:47
 Analyst: SMB
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.55	1.27	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-02
 Client ID: PB26-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:45
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 19:07
 Analyst: SMB
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-03
 Client ID: PB26-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:55
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 19:47
 Analyst: SMB
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.38	1.19	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-04
 Client ID: PB26-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:10
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 20:27
 Analyst: SMB
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.49	1.24	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-05
 Client ID: PB26-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:20
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 21:07
 Analyst: SMB
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.31	1.15	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-06
 Client ID: PB26-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:35
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 21:47
 Analyst: SMB
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-07
 Client ID: PB26-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:45
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/14/21 22:27
 Analyst: SMB
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-08
 Client ID: PB26-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:00
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 01:07
 Analyst: SMB
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.29	1.15	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-09
 Client ID: PB26-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:15
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 01:46
 Analyst: SMB
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.42	1.21	1



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-10
 Client ID: PB26-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:30
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 02:26
 Analyst: SMB
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-11
 Client ID: PB26-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:50
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 03:06
 Analyst: SMB
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-12
 Client ID: PB26-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 12:00
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/16/21 17:13
 Analyst: SMB
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.43	1.22	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-13
 Client ID: PB26-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:10
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/16/21 17:53
 Analyst: SMB
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-14
 Client ID: PB26-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:20
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/16/21 18:32
 Analyst: SMB
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.48	1.24	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-15
 Client ID: PB26-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:30
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/16/21 19:12
 Analyst: SMB
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-16
 Client ID: PB26-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:40
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8015D
 Analytical Date: 06/16/21 19:51
 Analyst: SMB
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-17 D2
 Client ID: PB27-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:40
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/14/21 08:59
 Analyst: MV
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	49.		mg/kg	3.8	0.38	25
Benzene	16.		mg/kg	0.94	0.31	25
1,2-Dichloroethane	ND		mg/kg	1.9	0.48	25
Toluene	89.		mg/kg	1.9	1.0	25
1,2-Dibromoethane	ND		mg/kg	0.94	0.55	25
Ethylbenzene	130		mg/kg	1.9	0.26	25
p/m-Xylene	550		mg/kg	3.8	1.0	25
o-Xylene	220		mg/kg	1.9	0.55	25
Xylenes, Total	770		mg/kg	1.9	0.55	25
Isopropylbenzene	33.		mg/kg	1.9	0.20	25
1,3,5-Trimethylbenzene	150		mg/kg	3.8	0.36	25
1,2,4-Trimethylbenzene	400		mg/kg	3.8	0.63	25
Naphthalene	98.		mg/kg	7.5	1.2	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	141	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-17 D
 Client ID: PB27-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:40
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/12/21 14:25
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	31.		mg/kg	0.60	0.061	4
Benzene	9.0		mg/kg	0.15	0.050	4
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	4
Toluene	80.		mg/kg	0.30	0.16	4
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	4
Ethylbenzene	120	E	mg/kg	0.30	0.042	4
p/m-Xylene	460	E	mg/kg	0.60	0.17	4
o-Xylene	200	E	mg/kg	0.30	0.088	4
Isopropylbenzene	30.		mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	140	E	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	320	E	mg/kg	0.60	0.10	4
Naphthalene	91.	E	mg/kg	1.2	0.20	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	279	Q	70-130
Dibromofluoromethane	54	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-18 D2
 Client ID: PB27-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:45
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/14/21 08:33
 Analyst: MV
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	120		mg/kg	15	1.5	100
Benzene	69.		mg/kg	3.8	1.3	100
1,2-Dichloroethane	ND		mg/kg	7.6	2.0	100
Toluene	160		mg/kg	7.6	4.2	100
1,2-Dibromoethane	ND		mg/kg	3.8	2.2	100
Ethylbenzene	250		mg/kg	7.6	1.1	100
p/m-Xylene	1000		mg/kg	15	4.3	100
o-Xylene	400		mg/kg	7.6	2.2	100
Xylenes, Total	1400		mg/kg	0.76	0.22	100
Isopropylbenzene	61.		mg/kg	7.6	0.83	100
1,3,5-Trimethylbenzene	200		mg/kg	15	1.5	100
1,2,4-Trimethylbenzene	530		mg/kg	15	2.6	100
Naphthalene	170		mg/kg	31	5.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-18 D
 Client ID: PB27-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:45
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/12/21 14:51
 Analyst: NLK
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	94.		mg/kg	1.5	0.15	10
Benzene	49.		mg/kg	0.38	0.13	10
1,2-Dichloroethane	ND		mg/kg	0.76	0.20	10
Toluene	160		mg/kg	0.76	0.42	10
1,2-Dibromoethane	ND		mg/kg	0.38	0.22	10
Ethylbenzene	260	E	mg/kg	0.76	0.11	10
p/m-Xylene	970	E	mg/kg	1.5	0.43	10
o-Xylene	400		mg/kg	0.76	0.22	10
Isopropylbenzene	61.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	190		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	490	E	mg/kg	1.5	0.26	10
Naphthalene	140		mg/kg	3.1	0.50	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	165	Q	70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-19
 Client ID: FB-210607-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:20
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/10/21 15:25
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/10/21 13:00

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: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-19
 Client ID: FB-210607-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:20
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 22:43
 Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-19
 Client ID: FB-210607-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:20
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 03:26
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20
 Client ID: FB-210607-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:50
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/10/21 15:32
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/10/21 13:00

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: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-20
 Client ID: FB-210607-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:50
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8015D
 Analytical Date: 06/15/21 23:23
 Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20
 Client ID: FB-210607-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:50
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 03:49
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-21
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 00:00
 Date Received: 06/07/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 04:12
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/10/21 14:23
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/10/21 13:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 19-20 Batch: WG1510242-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/14/21 14:29
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 01-11 Batch: WG1510337-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/14/21 07:41
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-10					
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	81		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/12/21 10:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-5					
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	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**Method Blank Analysis**
Batch Quality ControlAnalytical Method: 1,8015D
Analytical Date: 06/15/21 19:22
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 19-20 Batch: WG1512410-1					
Ethyl Alcohol	ND		mg/l	2.00	1.88

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/15/21 22:01
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 19-21 Batch: WG1512883-5					
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
Naphthalene	0.27	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	92		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/16/21 13:55
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 12-16 Batch: WG1512927-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 19-20 Batch: WG1510242-2									
1,2-Dibromoethane	103		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

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
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 Batch: WG1510337-2 WG1510337-3								
Ethyl Alcohol	102		100		70-130	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-3 WG1511682-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	79		79		70-130	0		30
1,2-Dichloroethane	80		81		70-130	1		30
Toluene	80		80		70-130	0		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	86		84		70-130	2		30
o-Xylene	86		85		70-130	1		30
Isopropylbenzene	91		90		70-130	1		30
1,3,5-Trimethylbenzene	94		94		70-130	0		30
1,2,4-Trimethylbenzene	93		94		70-130	1		30
Naphthalene	91		100		70-130	9		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	104		102		70-130
Dibromofluoromethane	101		101		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-8 WG1511682-9									
Methyl tert butyl ether	88		87		66-130		1		30
Benzene	82		82		70-130		0		30
1,2-Dichloroethane	71		71		70-130		0		30
Toluene	84		82		70-130		2		30
1,2-Dibromoethane	86		85		70-130		1		30
Ethylbenzene	88		87		70-130		1		30
p/m-Xylene	85		84		70-130		1		30
o-Xylene	87		86		70-130		1		30
Isopropylbenzene	93		92		70-130		1		30
1,3,5-Trimethylbenzene	95		93		70-130		2		30
1,2,4-Trimethylbenzene	95		94		70-130		1		30
Naphthalene	103		102		70-130		1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	80		78		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	94		94		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 19-20 Batch: WG1512410-2 WG1512410-3								
Ethyl Alcohol	106		101		70-130	5		30



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 19-21 Batch: WG1512883-3 WG1512883-4								
Methyl tert butyl ether	82		82		63-130	0		20
Benzene	86		87		70-130	1		20
1,2-Dichloroethane	94		93		70-130	1		20
Toluene	95		96		70-130	1		20
Ethylbenzene	92		93		70-130	1		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	96		84		70-130	13		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		108		70-130
Toluene-d8	111		111		70-130
4-Bromofluorobenzene	121		120		70-130
Dibromofluoromethane	92		92		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

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
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 Batch: WG1512927-2 WG1512927-3								
Ethyl Alcohol	99		102		70-130	3		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1510337-4 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 QC Batch ID: WG1512927-4 QC Sample: L2130480-16 Client ID: PB26-16-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30

METALS



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-17

Date Collected: 06/07/21 14:40

Client ID: PB27-01-SS01

Date Received: 06/07/21

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	182		mg/kg	2.39	0.128	1	06/15/21 06:30	06/23/21 20:55	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-18

Date Collected: 06/07/21 14:45

Client ID: PB27-02-SS01

Date Received: 06/07/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1580		mg/kg	2.49	0.133	1	06/15/21 06:30	06/23/21 21:00	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-19

Date Collected: 06/07/21 14:20

Client ID: FB-210607-1

Date Received: 06/07/21

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	06/15/21 00:38	06/25/21 13:26	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20

Date Collected: 06/07/21 14:50

Client ID: FB-210607-2

Date Received: 06/07/21

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	06/15/21 00:38	06/25/21 13:31	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

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): 19-20 Batch: WG1510812-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

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): 17-18 Batch: WG1511040-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/15/21 06:30	06/21/21 18:04	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 19-20 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1511040-2 SRM Lot Number: D109-540								
Lead, Total	100		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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): 19-20 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-3 QC Sample: L2128477-41 Client ID: MS Sample												
Lead, Total	9.80	49.2	61.4	105		-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-4 QC Sample: L2128477-41 Client ID: DUP Sample						
Lead, Total	9.80	13.4	mg/kg	31	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-01

Date Collected: 06/07/21 09:35

Client ID: PB26-01-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	76.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-02
Client ID: PB26-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:45
Date Received: 06/07/21
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 - Mansfield Lab										
Solids, Total	84.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-03
Client ID: PB26-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:55
Date Received: 06/07/21
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 - Mansfield Lab										
Solids, Total	80.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-04

Date Collected: 06/07/21 10:10

Client ID: PB26-04-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	78.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-05

Date Collected: 06/07/21 10:20

Client ID: PB26-05-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	82.9		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-06

Date Collected: 06/07/21 10:35

Client ID: PB26-06-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	82.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-07

Date Collected: 06/07/21 10:45

Client ID: PB26-07-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	83.0		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-08

Date Collected: 06/07/21 11:00

Client ID: PB26-08-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	83.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-09
Client ID: PB26-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:15
Date Received: 06/07/21
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 - Mansfield Lab										
Solids, Total	81.5		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-10

Date Collected: 06/07/21 11:30

Client ID: PB26-10-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	79.7		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-11
 Client ID: PB26-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:50
 Date Received: 06/07/21
 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 - Mansfield Lab										
Solids, Total	81.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-12
Client ID: PB26-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 12:00
Date Received: 06/07/21
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 - Mansfield Lab										
Solids, Total	81.8		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-13
Client ID: PB26-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:10
Date Received: 06/07/21
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 - Mansfield Lab										
Solids, Total	83.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-14

Date Collected: 06/07/21 13:20

Client ID: PB26-14-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	79.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-15

Date Collected: 06/07/21 13:30

Client ID: PB26-15-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	81.6		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-16

Date Collected: 06/07/21 13:40

Client ID: PB26-16-SS01

Date Received: 06/07/21

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 - Mansfield Lab										
Solids, Total	83.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-17

Date Collected: 06/07/21 14:40

Client ID: PB27-01-SS01

Date Received: 06/07/21

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	79.8		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**SAMPLE RESULTS**

Lab ID: L2130480-18

Date Collected: 06/07/21 14:45

Client ID: PB27-02-SS01

Date Received: 06/07/21

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	75.6		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 17-18 QC Batch ID: WG1509027-1 QC Sample: L2129449-33 Client ID: DUP Sample						
Solids, Total	89.4	89.6	%	0		20
General Chemistry - Mansfield Lab Associated sample(s): 01-16 QC Batch ID: WG1509755-1 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Solids, Total	76.2	76.0	%	0		10

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**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(*)
L2130480-01A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-02A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-03A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-04A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-05A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-06A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-07A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-08A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-09A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-10A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-11A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-12A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-13A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-14A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-15A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-16A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-17A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-17B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-18A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-18B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130480**Project Number:** 200.00135.005**Report Date:** 07/01/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130480-18C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-18D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-18E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-19A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-19J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-19K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-20J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-21A	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)
L2130480-21B	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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.

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

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-Terpeneol

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-Terpeneol; 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: 508-898-9220 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: 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 project-specific analyte list of ETHANOL

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		
30450.0	PB26-01-SS01	6/7	0935	S	TS
02	PB26-02-SS01		0945		TS
03	PB26-03-SS01		0955		TS
04	PB26-04-SS01		1010		TS
05	PB26-05-SS01		1020		TS
06	PB26-06-SS01		1035		TS
07	PB26-07-SS01		1045		TS
08	PB26-08-SS01		1100		TS
09	PB26-09-SS01		1115		TS
10	PB26-10-SS01		1130		TS

FORM NO. 11-0111-011
(rev. 3-10-12)

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 6/4/21

ALPHA Job #: L2130440

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

A2-Alcohol (8015)															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
	Sample Specific Comments															
<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"/>	Ethanol only	1
<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"/>	Ethanol only	1
<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"/>	Ethanol only	1
<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"/>	Ethanol only	1
<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"/>	Ethanol only	1
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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"/>	Ethanol only	1
<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"/>	Ethanol only	1

Container Type G

Preservative A

Relinquished By: <i>[Signature]</i>	Date/Time: 6/7/21 16:00	Received By: <i>[Signature]</i>	Date/Time: 6/7/21 16:14
<i>[Signature]</i>	6/7/21 17:00	<i>[Signature]</i>	6/7/21 17:00
<i>[Signature]</i>	6/7/21	<i>[Signature]</i>	6/7/21 22:00
<i>[Signature]</i>	6/8/21 02:00	<i>[Signature]</i>	6/8/21 02:00

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.



CHAIN OF CUSTODY

PAGE 2 OF 3

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

Manfield, MA
 TEL: 508-822-9300
 FAX: 508-822-3288

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 project-specific analyte list of ETHANOL

Email results to edd@terraphase.com,
 William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/8/21

ALPHA Job #: 22130440

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	A2-Alcohol (8015)											SAMPLE HANDLING <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) Sample Specific Comments	TOTAL # BOTTLES
		Date	Time															
30440-11	PB26-11-5501	6/7	1150	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"/>	Ethanol only	1
12	PB26-12-5501		1200		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"/>	Ethanol only	1
13	PB26-13-5501		1310		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"/>	Ethanol only	1
14	PB26-14-5501		1320		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"/>	Ethanol only	1
15	PB26-15-5501		1330		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"/>	Ethanol only	1
16	PB26-16-5501		1340		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"/>	Ethanol only	1
					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 type="checkbox"/>	<input type="checkbox"/>	Ethanol only	
					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 type="checkbox"/>	<input type="checkbox"/>	Ethanol only	
					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 type="checkbox"/>	<input type="checkbox"/>	Ethanol only	
					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 type="checkbox"/>	<input type="checkbox"/>	Ethanol only	

Container Type G

Preservative A

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/7 16:17	<i>[Signature]</i>	6/7/21 11:16
<i>[Signature]</i>	6/7/21 1730	<i>[Signature]</i>	6/7/21 1730
<i>[Signature]</i>	6/7/21	<i>[Signature]</i>	6/7/21 2200
<i>[Signature]</i>	6/8/21 02:00	<i>[Signature]</i>	6/8/21 0200

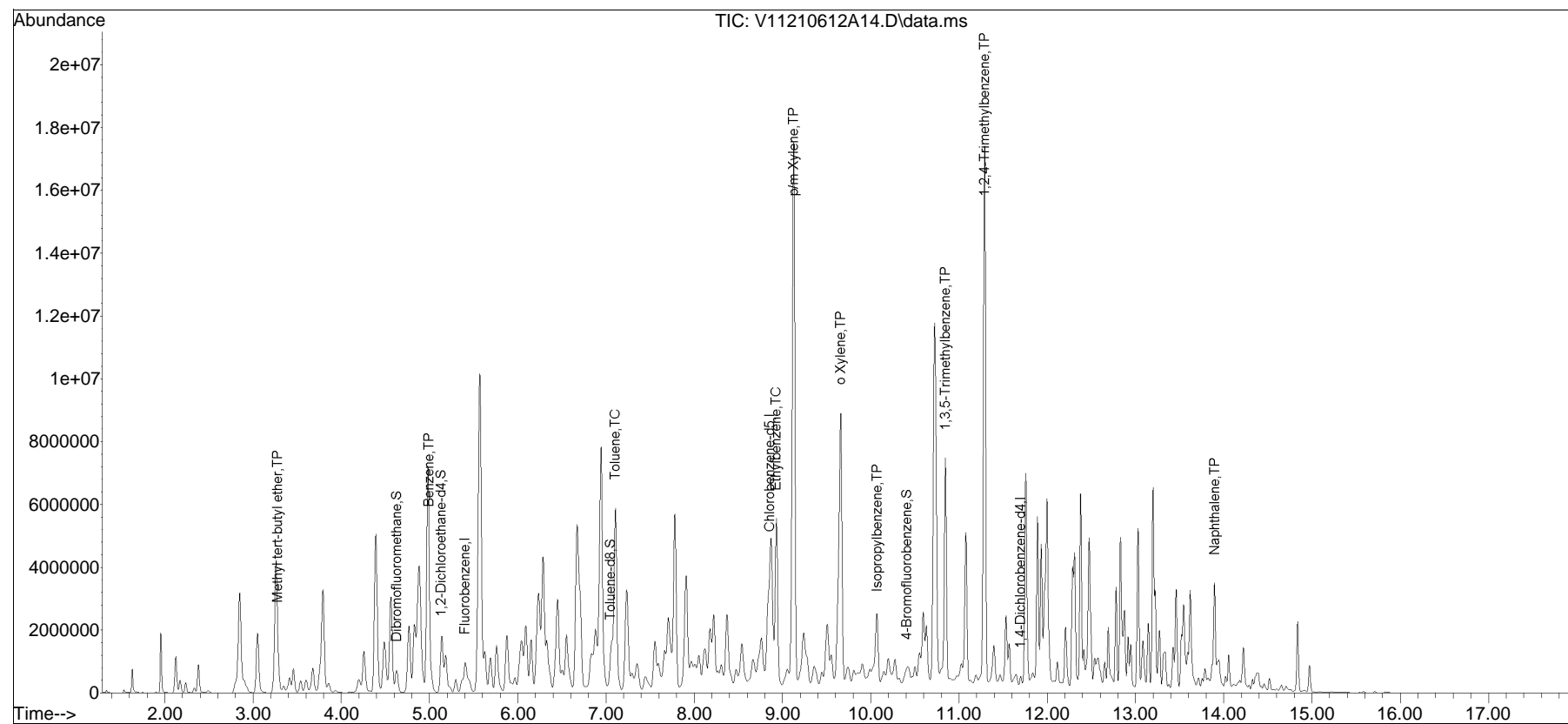
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A14.D
Acq On : 12 Jun 2021 02:25 pm
Operator : VOA111:NLK
Sample : L2130480-17D,31H,4.99,5,0.025,,A
Misc : WG1511682,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 13 14:32:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•

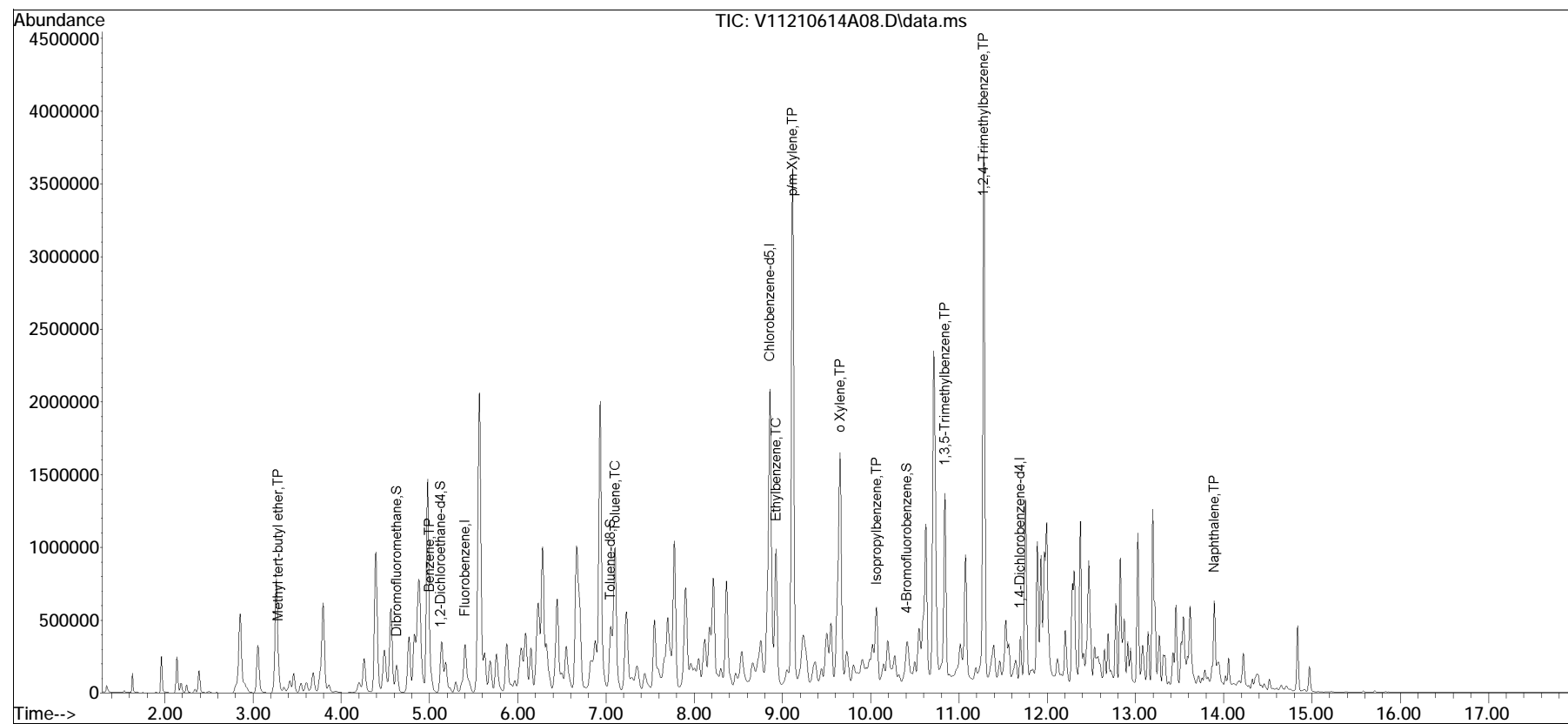


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210614A\
Data File : V11210614A08.D
Acq On : 14 Jun 2021 08:59 am
Operator : VOA111:MV
Sample : L2130480-17D2,31H,4.99,5,0.004,,A
Misc : WG1511682,ICAL18049
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 14 12:39:53 2021
Quant Method : I:\VOLATILES\VOA111\2021\210614A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V11210614A01.D•

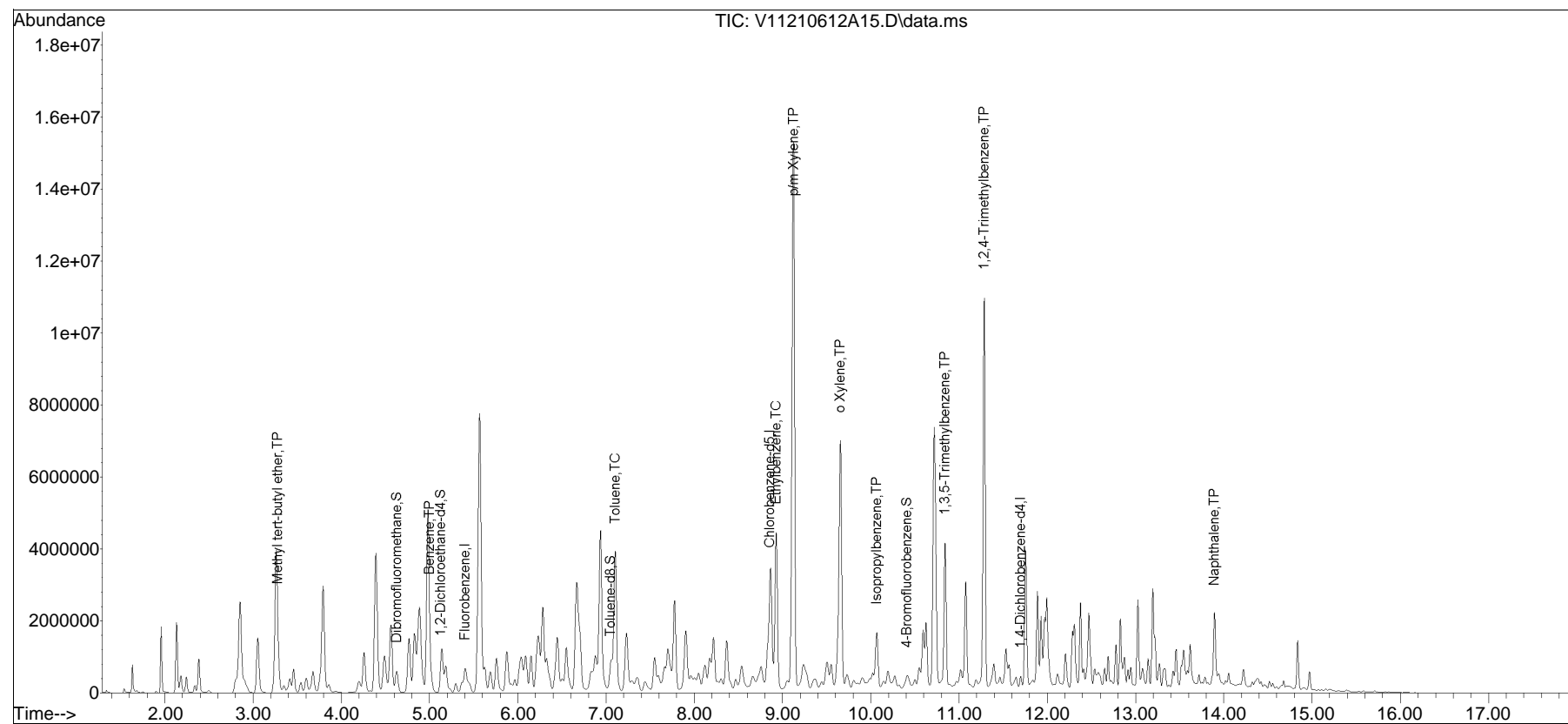


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A15.D
Acq On : 12 Jun 2021 02:51 pm
Operator : VOA111:NLK
Sample : L2130480-18D,31H,5.47,5,0.010,,A
Misc : WG1511682,ICAL18049
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 14:32:57 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•





ANALYTICAL REPORT

Lab Number:	L2130781
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/06/21

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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: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-01	PB27-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:30	06/08/21
L2130781-02	PB27-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:45	06/08/21
L2130781-03	PB27-05-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:55	06/08/21
L2130781-04	PB27-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:10	06/08/21
L2130781-05	PB27-07-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:15	06/08/21
L2130781-06	PB27-08-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:40	06/08/21
L2130781-07	PB27-09-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:55	06/08/21
L2130781-08	PB27-10-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:05	06/08/21
L2130781-09	PB27-12-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:35	06/08/21
L2130781-10	PB27-13-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:50	06/08/21
L2130781-11	PB27-11-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:55	06/08/21
L2130781-12	PB27-14-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:25	06/08/21
L2130781-13	PB27-15-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:40	06/08/21
L2130781-14	PB27-16-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:50	06/08/21
L2130781-15	PB27-17-SS01	SOIL	PHILADELPHIA, PA	06/08/21 11:50	06/08/21
L2130781-16	DUP-3	SOIL	PHILADELPHIA, PA	06/08/21 07:50	06/08/21
L2130781-17	FB-210608-1	WATER	PHILADELPHIA, PA	06/08/21 12:00	06/08/21
L2130781-18	TB	WATER	PHILADELPHIA, PA	06/08/21 00:00	06/08/21
L2130781-19	PB28-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:20	06/08/21
L2130781-20	PB28-19-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:30	06/08/21
L2130781-21	PB28-02-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:55	06/08/21
L2130781-22	PB28-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:10	06/08/21
L2130781-23	PB28-01-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:35	06/08/21
L2130781-24	PB28-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:50	06/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-25	FB-210608-2	WATER	PHILADELPHIA, PA	06/08/21 14:00	06/08/21



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Case Narrative (continued)

Report Submission

July 06, 2021: This final report includes the results of all requested analyses.

July 01, 2021: 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

L2130781-03D2: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (132%), toluene-d8 (145%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-05D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2130781-05D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (56%) due to interference with the Internal Standard.

L2130781-05D: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (145%), toluene-d8 (188%) and 4-bromofluorobenzene (172%); 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.

L2130781-06D: The surrogate recoveries were outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Case Narrative (continued)

L2130781-07D: The surrogate recovery was outside the acceptance criteria for 1,2-dichloroethane-d4 (134%); however, re-analysis on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-08D: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (148%), toluene-d8 (156%) and 4-bromofluorobenzene (150%); however, re-analysis on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-08D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (131%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-09: The surrogate recovery is outside the method acceptance criteria for ibromofluoromethane (51%) due to interference with the Internal Standard.

L2130781-09: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (145%) and 4-bromofluorobenzene (675%); 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.

L2130781-11D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (137%), toluene-d8 (159%) and 4-bromofluorobenzene (192%); however, re-analyzed on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (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.

Project Name: PES REFINERY - AST CLOSURE
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Report Date: 07/06/21

Case Narrative (continued)

L2130781-13D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (139%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-13D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (67%), 1,2-dichloroethane-d4 (136%), toluene-d8 (175%) and 4-bromofluorobenzene (196%); however, re-analysis on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-14: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (401%); 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.

L2130781-15: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (160%) and 4-bromofluorobenzene (153%); 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.

L2130781-19: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (62%); however, re-analyzed on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-23: The surrogate recovery was outside the acceptance criteria for 4-bromofluorobenzene (138%); however, re-analyzed on a larger dilution was required in order to quantitate the sample 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 analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Semivolatile Organics by SIM

L2130781-23D and -24D: The sample has elevated detection limits due to the dilution required by the sample

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Case Narrative (continued)

matrix.

The WG1514497-1 Method Blank, associated with L2130781-19, -20D, -21D, -22, -23D, and -24D, has a concentration above the reporting limit for Naphthalene, Phenanthrene, Fluoranthene and Pyrene. The results of the original analysis are reported and are qualified with a "B" for any associated sample concentrations that are less than 10x the blank concentration for this analyte.

Total Metals

L2130781-09, -11 and -13: 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:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 07/06/21

ORGANICS



VOLATILES

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01 D2
 Client ID: PB27-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 20:49
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	34.		mg/kg	5.5	0.55	40
Toluene	370		mg/kg	2.7	1.5	40
Ethylbenzene	200		mg/kg	2.7	0.38	40
p/m-Xylene	840		mg/kg	5.5	1.5	40
Xylenes, Total	1200		mg/kg	0.68	0.20	40
1,2,4-Trimethylbenzene	470		mg/kg	5.5	0.91	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	92		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01 D
 Client ID: PB27-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 12:00
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	36.		mg/kg	1.4	0.14	10
Benzene	39.		mg/kg	0.34	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.68	0.18	10
Toluene	390	E	mg/kg	0.68	0.37	10
1,2-Dibromoethane	ND		mg/kg	0.34	0.20	10
Ethylbenzene	230	E	mg/kg	0.68	0.096	10
p/m-Xylene	820	E	mg/kg	1.4	0.38	10
o-Xylene	320		mg/kg	0.68	0.20	10
Isopropylbenzene	32.		mg/kg	0.68	0.074	10
1,3,5-Trimethylbenzene	180		mg/kg	1.4	0.13	10
1,2,4-Trimethylbenzene	450	E	mg/kg	1.4	0.23	10
Naphthalene	59.		mg/kg	2.7	0.44	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02
Client ID: PB27-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:45
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 07:48
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.012	1
Benzene	1.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.36		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.56		mg/kg	0.061	0.0086	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.13		mg/kg	0.061	0.018	1
Xylenes, Total	1.3		mg/kg	0.061	0.018	1
Isopropylbenzene	3.2		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	7.2		mg/kg	0.12	0.020	1
Naphthalene	3.3		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	87		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03 D2
 Client ID: PB27-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 01:27
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.9		mg/kg	1.8	0.18	5
Benzene	48.		mg/kg	0.46	0.15	5
1,2-Dichloroethane	ND		mg/kg	0.92	0.24	5
Toluene	25.		mg/kg	0.92	0.50	5
1,2-Dibromoethane	ND		mg/kg	0.46	0.27	5
Ethylbenzene	230		mg/kg	0.92	0.13	5
p/m-Xylene	850	E	mg/kg	1.8	0.52	5
o-Xylene	240		mg/kg	0.92	0.27	5
Isopropylbenzene	50.		mg/kg	0.92	0.10	5
1,3,5-Trimethylbenzene	150		mg/kg	1.8	0.18	5
1,2,4-Trimethylbenzene	400	E	mg/kg	1.8	0.31	5
Naphthalene	79.		mg/kg	3.7	0.60	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	132	Q	70-130
Toluene-d8	145	Q	70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03 D
 Client ID: PB27-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 12:25
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	9.5		mg/kg	3.7	0.37	10
Benzene	60.		mg/kg	0.92	0.31	10
1,2-Dichloroethane	ND		mg/kg	1.8	0.48	10
Toluene	31.		mg/kg	1.8	1.0	10
1,2-Dibromoethane	ND		mg/kg	0.92	0.54	10
Ethylbenzene	250		mg/kg	1.8	0.26	10
p/m-Xylene	950		mg/kg	3.7	1.0	10
o-Xylene	260		mg/kg	1.8	0.54	10
Xylenes, Total	1200		mg/kg	0.92	0.27	10
Isopropylbenzene	56.		mg/kg	1.8	0.20	10
1,3,5-Trimethylbenzene	180		mg/kg	3.7	0.36	10
1,2,4-Trimethylbenzene	480		mg/kg	3.7	0.62	10
Naphthalene	93.		mg/kg	7.4	1.2	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	79		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04 D2
 Client ID: PB27-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:10
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 01:52
 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	9.1		mg/kg	1.2	0.12	10
Benzene	39.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.16	10
Toluene	100		mg/kg	0.60	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	110		mg/kg	0.60	0.085	10
p/m-Xylene	420	E	mg/kg	1.2	0.34	10
o-Xylene	150		mg/kg	0.60	0.18	10
Isopropylbenzene	17.		mg/kg	0.60	0.066	10
1,3,5-Trimethylbenzene	98.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	250	E	mg/kg	1.2	0.20	10
Naphthalene	27.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	77		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04 D
 Client ID: PB27-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:10
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 11:35
 Analyst: AJK
 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	11.		mg/kg	2.4	0.24	20
p/m-Xylene	500		mg/kg	2.4	0.68	20
Xylenes, Total	650		mg/kg	0.60	0.18	20
1,2,4-Trimethylbenzene	300		mg/kg	2.4	0.40	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-05 D
 Client ID: PB27-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:15
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 14:32
 Analyst: AJK
 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	0.26	0.026	2.5
Benzene	3.0		mg/kg	0.066	0.022	2.5
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2.5
Toluene	1.0		mg/kg	0.13	0.071	2.5
1,2-Dibromoethane	ND		mg/kg	0.066	0.038	2.5
Ethylbenzene	1.5		mg/kg	0.13	0.018	2.5
p/m-Xylene	2.3		mg/kg	0.26	0.074	2.5
o-Xylene	0.36		mg/kg	0.13	0.038	2.5
Xylenes, Total	2.7		mg/kg	0.13	0.038	2.5
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2.5
1,3,5-Trimethylbenzene	1.2		mg/kg	0.26	0.025	2.5
1,2,4-Trimethylbenzene	0.59		mg/kg	0.26	0.044	2.5
Naphthalene	1.3		mg/kg	0.52	0.085	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	145	Q	70-130
Toluene-d8	188	Q	70-130
4-Bromofluorobenzene	172	Q	70-130
Dibromofluoromethane	56	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06 D2
 Client ID: PB27-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:40
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 19:34
 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	2.3	0.23	20
Benzene	30.		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	240		mg/kg	1.2	0.63	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	97.		mg/kg	1.2	0.16	20
p/m-Xylene	370		mg/kg	2.3	0.65	20
o-Xylene	130		mg/kg	1.2	0.34	20
Xylenes, Total	500		mg/kg	0.58	0.17	20
Isopropylbenzene	11.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	75.		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	200		mg/kg	2.3	0.39	20
Naphthalene	20.		mg/kg	4.7	0.76	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06 D
 Client ID: PB27-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:40
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 12:50
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.24	J	mg/kg	1.2	0.12	10
Benzene	26.		mg/kg	0.29	0.097	10
1,2-Dichloroethane	ND		mg/kg	0.58	0.15	10
Toluene	220	E	mg/kg	0.58	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.29	0.17	10
Ethylbenzene	92.		mg/kg	0.58	0.082	10
p/m-Xylene	340		mg/kg	1.2	0.33	10
o-Xylene	120		mg/kg	0.58	0.17	10
Xylenes, Total	460		mg/kg	0.58	0.17	10
Isopropylbenzene	10.		mg/kg	0.58	0.064	10
1,3,5-Trimethylbenzene	69.		mg/kg	1.2	0.11	10
1,2,4-Trimethylbenzene	170		mg/kg	1.2	0.19	10
Naphthalene	19.		mg/kg	2.3	0.38	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	134	Q	70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	78		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07 D2
 Client ID: PB27-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 19:09
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0	J	mg/kg	2.4	0.25	20
Benzene	32.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.32	20
Toluene	110		mg/kg	1.2	0.67	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	140		mg/kg	1.2	0.17	20
p/m-Xylene	440		mg/kg	2.4	0.69	20
o-Xylene	180		mg/kg	1.2	0.36	20
Xylenes, Total	620		mg/kg	0.61	0.18	20
Isopropylbenzene	30.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	91.		mg/kg	2.4	0.24	20
1,2,4-Trimethylbenzene	250		mg/kg	2.4	0.41	20
Naphthalene	53.		mg/kg	4.9	0.80	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07 D
 Client ID: PB27-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 13:16
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.91	J	mg/kg	1.2	0.12	10
Benzene	27.		mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	100		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	140		mg/kg	0.61	0.087	10
p/m-Xylene	410	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.61	0.18	10
Isopropylbenzene	28.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	85.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	230	E	mg/kg	1.2	0.20	10
Naphthalene	55.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	134	Q	70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	73		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08 D2
 Client ID: PB27-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:05
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 18:43
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.2		mg/kg	0.59	0.060	5
Benzene	17.		mg/kg	0.15	0.049	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.076	5
Toluene	67.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	38.		mg/kg	0.30	0.042	5
p/m-Xylene	120		mg/kg	0.59	0.17	5
o-Xylene	43.		mg/kg	0.30	0.086	5
Xylenes, Total	160		mg/kg	0.15	0.043	5
Isopropylbenzene	8.6		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	25.		mg/kg	0.59	0.057	5
1,2,4-Trimethylbenzene	64.		mg/kg	0.59	0.099	5
Naphthalene	13.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	76		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08 D
 Client ID: PB27-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:05
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 14:57
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	6.2		mg/kg	0.30	0.030	2.5
Benzene	13.		mg/kg	0.074	0.025	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	63.	E	mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	36.		mg/kg	0.15	0.021	2.5
p/m-Xylene	110	E	mg/kg	0.30	0.083	2.5
o-Xylene	41.		mg/kg	0.15	0.043	2.5
Isopropylbenzene	7.9		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	22.		mg/kg	0.30	0.029	2.5
1,2,4-Trimethylbenzene	57.	E	mg/kg	0.30	0.050	2.5
Naphthalene	13.		mg/kg	0.59	0.096	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	148	Q	70-130
Toluene-d8	156	Q	70-130
4-Bromofluorobenzene	150	Q	70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09
 Client ID: PB27-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:35
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 03:33
 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	0.0015		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0054		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0011		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0050		mg/kg	0.0020	0.00056	1
o-Xylene	0.0062		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.011		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.25		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00036	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	0.00080	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	145	Q	70-130
4-Bromofluorobenzene	675	Q	70-130
Dibromofluoromethane	51	Q	70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10
 Client ID: PB27-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 06:32
 Analyst: MV
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0030		mg/kg	0.0020	0.00020	1
Benzene	0.043		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0024		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0014		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.016		mg/kg	0.0020	0.00056	1
o-Xylene	0.0020		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.018		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.036		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0023		mg/kg	0.0020	0.00033	1
Naphthalene	0.00079	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	74		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11 D2
 Client ID: PB27-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 02:17
 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	1.1		mg/kg	0.61	0.061	5
Benzene	19.		mg/kg	0.15	0.051	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	37.		mg/kg	0.30	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.090	5
Ethylbenzene	54.		mg/kg	0.30	0.043	5
p/m-Xylene	190	E	mg/kg	0.61	0.17	5
o-Xylene	61.		mg/kg	0.30	0.089	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	51.		mg/kg	0.61	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.61	0.10	5
Naphthalene	43.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	137	Q	70-130
Toluene-d8	159	Q	70-130
4-Bromofluorobenzene	192	Q	70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11 D
 Client ID: PB27-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 13:41
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.3		mg/kg	1.2	0.12	10
Benzene	23.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	38.		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	54.		mg/kg	0.61	0.086	10
p/m-Xylene	200		mg/kg	1.2	0.34	10
o-Xylene	63.		mg/kg	0.61	0.18	10
Xylenes, Total	260		mg/kg	0.30	0.089	10
Isopropylbenzene	17.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	56.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10
Naphthalene	49.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-12
 Client ID: PB27-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:25
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 06:58
 Analyst: MV
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0058		mg/kg	0.0019	0.00019	1
Benzene	0.052		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	0.0035		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.0037		mg/kg	0.00096	0.00014	1
p/m-Xylene	0.0065		mg/kg	0.0019	0.00054	1
o-Xylene	0.0030		mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0095		mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.016		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.0038		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.0083		mg/kg	0.0019	0.00032	1
Naphthalene	0.023		mg/kg	0.0038	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	132	Q	70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	84		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13 D2
 Client ID: PB27-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:40
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 02:43
 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	0.56	J	mg/kg	0.60	0.060	5
Benzene	8.0		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	16.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	59.		mg/kg	0.30	0.042	5
p/m-Xylene	220	E	mg/kg	0.60	0.17	5
o-Xylene	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.60	0.10	5
Naphthalene	40.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	136	Q	70-130
Toluene-d8	175	Q	70-130
4-Bromofluorobenzene	196	Q	70-130
Dibromofluoromethane	67	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13 D
 Client ID: PB27-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:40
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 14:06
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.66	J	mg/kg	1.2	0.12	10
Benzene	9.8		mg/kg	0.30	0.099	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.15	10
Toluene	16.		mg/kg	0.60	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	60.		mg/kg	0.60	0.084	10
p/m-Xylene	230		mg/kg	1.2	0.34	10
o-Xylene	78.		mg/kg	0.60	0.17	10
Xylenes, Total	310		mg/kg	0.30	0.087	10
Isopropylbenzene	18.		mg/kg	0.60	0.065	10
1,3,5-Trimethylbenzene	59.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	160		mg/kg	1.2	0.20	10
Naphthalene	45.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	139	Q	70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	78		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14
 Client ID: PB27-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 02:43
 Analyst: JC
 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	0.0023	0.00023	1
Benzene	0.0017		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0021		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00030	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	0.0067		mg/kg	0.0023	0.00065	1
o-Xylene	0.0049		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.012		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.17		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0023	0.00039	1
Naphthalene	0.0062		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	139	Q	70-130
4-Bromofluorobenzene	401	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15
 Client ID: PB27-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 11:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 09:04
 Analyst: AJK
 Percent Solids: 81%

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	0.024	J	mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.091		mg/kg	0.054	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.93		mg/kg	0.054	0.0076	1
p/m-Xylene	0.62		mg/kg	0.11	0.030	1
o-Xylene	0.13		mg/kg	0.054	0.016	1
Xylenes, Total	0.75		mg/kg	0.054	0.016	1
Isopropylbenzene	4.3		mg/kg	0.054	0.0058	1
1,3,5-Trimethylbenzene	6.8		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	2.5		mg/kg	0.11	0.018	1
Naphthalene	0.56		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	160	Q	70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	70		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16
 Client ID: DUP-3
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 09:29
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.14	0.014	1
Benzene	0.64		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	0.27		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.021	1
Ethylbenzene	0.45		mg/kg	0.070	0.0099	1
p/m-Xylene	1.1		mg/kg	0.14	0.039	1
o-Xylene	0.11		mg/kg	0.070	0.020	1
Xylenes, Total	1.2		mg/kg	0.070	0.020	1
Isopropylbenzene	1.9		mg/kg	0.070	0.0077	1
1,3,5-Trimethylbenzene	0.30		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	6.4		mg/kg	0.14	0.024	1
Naphthalene	2.4		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
 Client ID: FB-210608-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/15/21 13:38
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/15/21 11:25

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
 Client ID: FB-210608-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/15/21 13:09
 Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
Naphthalene	0.24	J	ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	111		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-18
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 00:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/15/21 13:33
 Analyst: KTD

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	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19
 Client ID: PB28-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 09:54
 Analyst: AJK
 Percent Solids: 80%

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	0.30		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.18		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.44		mg/kg	0.063	0.0089	1
p/m-Xylene	6.4		mg/kg	0.12	0.035	1
o-Xylene	0.22		mg/kg	0.063	0.018	1
Xylenes, Total	6.6		mg/kg	0.063	0.018	1
Isopropylbenzene	2.3		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	19.	E	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	62	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19 D
 Client ID: PB28-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 21:14
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.063	5
Benzene	0.34		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.081	5
Toluene	0.18	J	mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.092	5
Ethylbenzene	0.41		mg/kg	0.31	0.044	5
p/m-Xylene	5.5		mg/kg	0.63	0.18	5
o-Xylene	0.23	J	mg/kg	0.31	0.092	5
Xylenes, Total	5.7	J	mg/kg	0.063	0.018	5
Isopropylbenzene	2.1		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	18.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	55.		mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20 D2
 Client ID: PB28-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 20:24
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	2000		mg/kg	14	7.5	200
p/m-Xylene	2300		mg/kg	27	7.7	200
Xylenes, Total	3300		mg/kg	3.4	1.0	200
1,2,4-Trimethylbenzene	870		mg/kg	27	4.6	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20 D
 Client ID: PB28-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 11:09
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.9	0.69	50
Benzene	74.		mg/kg	1.7	0.57	50
1,2-Dichloroethane	ND		mg/kg	3.4	0.88	50
Toluene	2300	E	mg/kg	3.4	1.9	50
1,2-Dibromoethane	ND		mg/kg	1.7	1.0	50
Ethylbenzene	700		mg/kg	3.4	0.48	50
p/m-Xylene	2700	E	mg/kg	6.9	1.9	50
o-Xylene	990		mg/kg	3.4	1.0	50
Isopropylbenzene	41.		mg/kg	3.4	0.37	50
1,3,5-Trimethylbenzene	400		mg/kg	6.9	0.66	50
1,2,4-Trimethylbenzene	1200	E	mg/kg	6.9	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21
 Client ID: PB28-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 10:44
 Analyst: AJK
 Percent Solids: 80%

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	0.13		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	ND		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	4.3		mg/kg	0.062	0.0087	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.062	0.018	1
Xylenes, Total	ND		mg/kg	0.062	0.018	1
Isopropylbenzene	1.7		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.061	J	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	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21 D
 Client ID: PB28-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 19:59
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	48.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22 D2
 Client ID: PB28-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 18:18
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	56.		mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22 D
Client ID: PB28-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:22
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	2.5
Benzene	0.049	J	mg/kg	0.074	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	0.15		mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	2.3		mg/kg	0.15	0.021	2.5
p/m-Xylene	1.8		mg/kg	0.29	0.082	2.5
o-Xylene	0.15		mg/kg	0.15	0.043	2.5
Xylenes, Total	2.0		mg/kg	0.15	0.043	2.5
Isopropylbenzene	3.2		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.29	0.028	2.5
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.29	0.049	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23
 Client ID: PB28-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:35
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 00:17
 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	0.13	0.013	1
Benzene	0.22		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.56		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	9.4		mg/kg	0.064	0.0091	1
p/m-Xylene	21.		mg/kg	0.13	0.036	1
o-Xylene	2.0		mg/kg	0.064	0.019	1
Xylenes, Total	23.		mg/kg	0.064	0.019	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	9.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23 D2
 Client ID: PB28-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:35
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 10:30
 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	0.32	0.032	2.5
Benzene	0.20		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	0.50		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	8.2		mg/kg	0.16	0.023	2.5
p/m-Xylene	19.		mg/kg	0.32	0.090	2.5
o-Xylene	1.7		mg/kg	0.16	0.047	2.5
Xylenes, Total	21.		mg/kg	0.064	0.019	2.5
Isopropylbenzene	1.4		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	8.1		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	25.		mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24
 Client ID: PB28-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 00:42
 Analyst: JC
 Percent Solids: 80%

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	0.18		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.83		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.9		mg/kg	0.058	0.0082	1
p/m-Xylene	14.		mg/kg	0.12	0.032	1
o-Xylene	4.9		mg/kg	0.058	0.017	1
Xylenes, Total	19.		mg/kg	0.058	0.017	1
Isopropylbenzene	0.71		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
 Client ID: FB-210608-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 14:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/15/21 13:45
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/15/21 11:25

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
 Client ID: FB-210608-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 14:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/15/21 13:56
 Analyst: KTD

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	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	115		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/15/21 12:36
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17,25 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/15/21 08:29
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-18,25 Batch: WG1512537-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10,12 Batch: WG1513067-5					
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	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 17:53
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-10					
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	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-5					
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	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,14 Batch: WG1513390-5					
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	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	93		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1513397-10					
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	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23-24 Batch: WG1513397-5					
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	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17,25 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-18,25 Batch: WG1512537-3 WG1512537-4								
Methyl tert butyl ether	72		73		63-130	1		20
Benzene	92		91		70-130	1		20
1,2-Dichloroethane	78		81		70-130	4		20
Toluene	92		91		70-130	1		20
Ethylbenzene	92		92		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		95		70-130	0		20
1,3,5-Trimethylbenzene	92		91		64-130	1		20
1,2,4-Trimethylbenzene	92		91		70-130	1		20
Naphthalene	82		88		70-130	7		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		92		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10,12 Batch: WG1513067-3 WG1513067-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-3 WG1513068-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-8 WG1513068-9								
Methyl tert butyl ether	103		107		66-130	4		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	101		106		70-130	5		30
Toluene	113		112		70-130	1		30
1,2-Dibromoethane	109		113		70-130	4		30
Ethylbenzene	114		114		70-130	0		30
p/m-Xylene	113		112		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	118		118		70-130	0		30
1,3,5-Trimethylbenzene	114		116		70-130	2		30
1,2,4-Trimethylbenzene	113		115		70-130	2		30
Naphthalene	97		102		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	95		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,14 Batch: WG1513390-3 WG1513390-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	84		84		70-130	0		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	84		85		70-130	1		30
Ethylbenzene	91		91		70-130	0		30
p/m-Xylene	84		84		70-130	0		30
o-Xylene	83		84		70-130	1		30
Isopropylbenzene	94		93		70-130	1		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	92		93		70-130	1		30
Naphthalene	89		93		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	95		95		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23-24 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	68	Q	69	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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: WG1513397-8 WG1513397-9								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130



SEMIVOLATILES



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19
 Client ID: PB28-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/21/21 13:18
 Analyst: DV
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.14		mg/kg	0.0082	0.0015	1
Fluorene	0.24		mg/kg	0.0082	0.00098	1
Phenanthrene	0.31		mg/kg	0.0082	0.00070	1
Anthracene	0.034		mg/kg	0.0082	0.00066	1
Pyrene	0.030	B	mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0084		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0028	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0019	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0013	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20 D
 Client ID: PB28-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 16:51
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.9		mg/kg	0.080	0.014	10
Fluorene	0.054	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	JB	mg/kg	0.080	0.0068	10
Anthracene	0.0076	J	mg/kg	0.080	0.0064	10
Pyrene	0.015	JB	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	ND		mg/kg	0.080	0.0076	10
Chrysene	ND		mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	ND		mg/kg	0.080	0.0076	10
Benzo(a)pyrene	ND		mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	96		30-120
4-Terphenyl-d14	93		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21 D
 Client ID: PB28-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 17:07
 Analyst: DV
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.4		mg/kg	0.083	0.015	10
Fluorene	0.10		mg/kg	0.083	0.010	10
Phenanthrene	0.14		mg/kg	0.083	0.0070	10
Anthracene	0.030	J	mg/kg	0.083	0.0066	10
Pyrene	0.027	JB	mg/kg	0.083	0.0058	10
Benzo(a)anthracene	0.010	J	mg/kg	0.083	0.0079	10
Chrysene	0.0070	J	mg/kg	0.083	0.0062	10
Benzo(b)fluoranthene	ND		mg/kg	0.083	0.0079	10
Benzo(a)pyrene	ND		mg/kg	0.083	0.010	10
Benzo(ghi)perylene	ND		mg/kg	0.083	0.0070	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	90		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22
 Client ID: PB28-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/21/21 14:08
 Analyst: DV
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.42		mg/kg	0.0081	0.0015	1
Fluorene	0.056		mg/kg	0.0081	0.00098	1
Phenanthrene	0.11	B	mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.014	B	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0023	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0015	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0014	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	64		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23 D
 Client ID: PB28-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:35
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 17:23
 Analyst: DV
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.040	0.0072	5
Fluorene	0.13		mg/kg	0.040	0.0048	5
Phenanthrene	0.20		mg/kg	0.040	0.0034	5
Anthracene	0.029	J	mg/kg	0.040	0.0032	5
Pyrene	0.0086	JB	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.040	0.0038	5
Chrysene	ND		mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	93		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24 D
 Client ID: PB28-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:50
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 17:40
 Analyst: DV
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.041	0.0073	5
Fluorene	0.024	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.033	JB	mg/kg	0.041	0.0035	5
Anthracene	0.0051	J	mg/kg	0.041	0.0033	5
Pyrene	ND		mg/kg	0.041	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	76		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
 Client ID: FB-210608-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 14:00
 Date Received: 06/08/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/14/21 16:53
 Analyst: DV

Extraction Method: EPA 3510C
 Extraction Date: 06/13/21 12:41

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	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.04	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	81		41-149

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 06/14/21 16:33
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 06/13/21 08:08

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25 Batch: WG1511442-1					
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
2-Fluorophenol	50		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	75		15-120
2,4,6-Tribromophenol	68		10-120
4-Terphenyl-d14	87		41-149



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 15:29
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 19-24 Batch: WG1514497-1					
Naphthalene	0.0075		mg/kg	0.0066	0.0012
Fluorene	0.0019	J	mg/kg	0.0066	0.00079
Phenanthrene	0.013		mg/kg	0.0066	0.00056
Anthracene	0.0038	J	mg/kg	0.0066	0.00053
Pyrene	0.014		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.0046	J	mg/kg	0.0066	0.00063
Chrysene	0.0034	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0021	J	mg/kg	0.0066	0.00063
Benzo(a)pyrene	0.0015	J	mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.00066	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	93		25-120
Phenol-d6	94		10-120
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	82		30-120
2,4,6-Tribromophenol	108		10-136
4-Terphenyl-d14	84		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25 Batch: WG1511442-2 WG1511442-3								
Naphthalene	92		80		40-140	14		40
Fluorene	100		94		40-140	6		40
Phenanthrene	96		92		40-140	4		40
Anthracene	102		98		40-140	4		40
Pyrene	101		100		26-127	1		40
Benzo(a)anthracene	99		100		40-140	1		40
Chrysene	101		100		40-140	1		40
Benzo(b)fluoranthene	106		100		40-140	6		40
Benzo(a)pyrene	105		103		40-140	2		40
Benzo(ghi)perylene	114		111		40-140	3		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	85		72		21-120
Phenol-d6	70		59		10-120
Nitrobenzene-d5	97		82		23-120
2-Fluorobiphenyl	87		80		15-120
2,4,6-Tribromophenol	137	Q	147	Q	10-120
4-Terphenyl-d14	102		102		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 19-24 Batch: WG1514497-2 WG1514497-3								
Naphthalene	80		76		40-140	5		50
Fluorene	85		83		40-140	2		50
Phenanthrene	84		82		40-140	2		50
Anthracene	91		89		40-140	2		50
Pyrene	93		90		35-142	3		50
Benzo(a)anthracene	96		93		40-140	3		50
Chrysene	84		84		40-140	0		50
Benzo(b)fluoranthene	93		95		40-140	2		50
Benzo(a)pyrene	98		96		40-140	2		50
Benzo(ghi)perylene	90		87		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	91		87		23-120
2-Fluorobiphenyl	73		71		30-120
4-Terphenyl-d14	74		72		18-120



METALS



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01
 Client ID: PB27-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
 Date Received: 06/08/21
 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	38.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 18:49	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02

Date Collected: 06/08/21 07:45

Client ID: PB27-04-SS01

Date Received: 06/08/21

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	392		mg/kg	2.32	0.124	1	06/25/21 09:34	07/02/21 18:37	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03

Date Collected: 06/08/21 07:55

Client ID: PB27-05-SS01

Date Received: 06/08/21

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	63.0		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 18:41	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04

Date Collected: 06/08/21 08:10

Client ID: PB27-06-SS01

Date Received: 06/08/21

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	22.8		mg/kg	2.40	0.129	1	06/25/21 09:34	07/02/21 18:45	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-05

Date Collected: 06/08/21 08:15

Client ID: PB27-07-SS01

Date Received: 06/08/21

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	224		mg/kg	2.41	0.129	1	06/25/21 09:34	07/02/21 19:19	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06

Date Collected: 06/08/21 08:40

Client ID: PB27-08-SS01

Date Received: 06/08/21

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	32.9		mg/kg	2.25	0.120	1	06/25/21 09:34	07/02/21 19:23	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07

Date Collected: 06/08/21 08:55

Client ID: PB27-09-SS01

Date Received: 06/08/21

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	11.3		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 19:28	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08

Date Collected: 06/08/21 09:05

Client ID: PB27-10-SS01

Date Received: 06/08/21

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	11.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 19:32	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09

Date Collected: 06/08/21 09:35

Client ID: PB27-12-SS01

Date Received: 06/08/21

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	112		mg/kg	11.9	0.636	5	06/25/21 09:34	07/03/21 13:12	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10

Date Collected: 06/08/21 09:50

Client ID: PB27-13-SS01

Date Received: 06/08/21

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	215		mg/kg	2.27	0.122	1	06/25/21 09:34	07/02/21 19:40	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11

Date Collected: 06/08/21 09:55

Client ID: PB27-11-SS01

Date Received: 06/08/21

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	11.7		mg/kg	11.7	0.630	5	06/25/21 09:34	07/03/21 13:17	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-12

Date Collected: 06/08/21 10:25

Client ID: PB27-14-SS01

Date Received: 06/08/21

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	11.0		mg/kg	2.36	0.126	1	06/25/21 09:34	07/02/21 19:49	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13

Date Collected: 06/08/21 10:40

Client ID: PB27-15-SS01

Date Received: 06/08/21

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	55.8		mg/kg	12.1	0.651	5	06/25/21 09:34	07/03/21 13:21	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14

Date Collected: 06/08/21 10:50

Client ID: PB27-16-SS01

Date Received: 06/08/21

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	120		mg/kg	2.47	0.133	1	06/25/21 09:34	07/02/21 19:57	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15

Date Collected: 06/08/21 11:50

Client ID: PB27-17-SS01

Date Received: 06/08/21

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	20.7		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 20:10	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16

Date Collected: 06/08/21 07:50

Client ID: DUP-3

Date Received: 06/08/21

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	101		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 20:14	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
 Client ID: FB-210608-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:00
 Date Received: 06/08/21
 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	06/15/21 00:38	06/25/21 13:36	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19

Date Collected: 06/08/21 12:20

Client ID: PB28-06-SS01

Date Received: 06/08/21

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	7.45		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:19	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20

Date Collected: 06/08/21 12:30

Client ID: PB28-19-SS01

Date Received: 06/08/21

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	7.29		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:23	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21
 Client ID: PB28-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
 Date Received: 06/08/21
 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	15.6		mg/kg	2.43	0.130	1	06/25/21 09:34	07/02/21 20:27	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22

Date Collected: 06/08/21 13:10

Client ID: PB28-03-SS01

Date Received: 06/08/21

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	7.65		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:32	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23

Date Collected: 06/08/21 13:35

Client ID: PB28-01-SS01

Date Received: 06/08/21

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	6.54		mg/kg	2.41	0.129	1	06/16/21 11:00	06/22/21 14:58	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24

Date Collected: 06/08/21 13:50

Client ID: PB28-04-SS01

Date Received: 06/08/21

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	6.66		mg/kg	2.42	0.130	1	06/16/21 11:00	06/22/21 23:08	EPA 3050B	1,6010D	BV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25

Date Collected: 06/08/21 14:00

Client ID: FB-210608-2

Date Received: 06/08/21

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	06/15/21 00:38	06/25/21 13:41	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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): 17,25 Batch: WG1510812-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

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): 01-16,19-22 Batch: WG1512398-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/16/21 20:57	06/23/21 22:59	1,6010D	BV

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): 23-24 Batch: WG1512399-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/16/21 11:00	06/22/21 14:33	1,6010D	SV

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): 01-16,19-22 Batch: WG1516839-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/25/21 09:34	07/02/21 18:28	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17,25 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512399-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 Batch: WG1516839-2 SRM Lot Number: D109-540								
Lead, Total	96		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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): 17,25 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1512398-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	ND	51	83.4	80		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-3 QC Sample: L2130781-23 Client ID: PB28-01-SS01												
Lead, Total	6.54	48.2	44.8	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	38.8	50.9	83.1	87		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-4 QC Sample: L2130781-23 Client ID: PB28-01-SS01						
Lead, Total	6.54	6.59	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-4 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Lead, Total	38.8	39.9	mg/kg	3		20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-01

Date Collected: 06/08/21 07:30

Client ID: PB27-03-SS01

Date Received: 06/08/21

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	79.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-02

Date Collected: 06/08/21 07:45

Client ID: PB27-04-SS01

Date Received: 06/08/21

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	82.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-03

Date Collected: 06/08/21 07:55

Client ID: PB27-05-SS01

Date Received: 06/08/21

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	80.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-04

Date Collected: 06/08/21 08:10

Client ID: PB27-06-SS01

Date Received: 06/08/21

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	81.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-05

Date Collected: 06/08/21 08:15

Client ID: PB27-07-SS01

Date Received: 06/08/21

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	81.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-06

Date Collected: 06/08/21 08:40

Client ID: PB27-08-SS01

Date Received: 06/08/21

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	84.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-07

Date Collected: 06/08/21 08:55

Client ID: PB27-09-SS01

Date Received: 06/08/21

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	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-08

Date Collected: 06/08/21 09:05

Client ID: PB27-10-SS01

Date Received: 06/08/21

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	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-09

Date Collected: 06/08/21 09:35

Client ID: PB27-12-SS01

Date Received: 06/08/21

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	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-10

Date Collected: 06/08/21 09:50

Client ID: PB27-13-SS01

Date Received: 06/08/21

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	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-11

Date Collected: 06/08/21 09:55

Client ID: PB27-11-SS01

Date Received: 06/08/21

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	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-12

Date Collected: 06/08/21 10:25

Client ID: PB27-14-SS01

Date Received: 06/08/21

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	81.6		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-13

Date Collected: 06/08/21 10:40

Client ID: PB27-15-SS01

Date Received: 06/08/21

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	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-14

Date Collected: 06/08/21 10:50

Client ID: PB27-16-SS01

Date Received: 06/08/21

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	79.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-15

Date Collected: 06/08/21 11:50

Client ID: PB27-17-SS01

Date Received: 06/08/21

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	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-16

Date Collected: 06/08/21 07:50

Client ID: DUP-3

Date Received: 06/08/21

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	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-19

Date Collected: 06/08/21 12:20

Client ID: PB28-06-SS01

Date Received: 06/08/21

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	80.3		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-20

Date Collected: 06/08/21 12:30

Client ID: PB28-19-SS01

Date Received: 06/08/21

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	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-21

Date Collected: 06/08/21 12:55

Client ID: PB28-02-SS01

Date Received: 06/08/21

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	80.3		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-22

Date Collected: 06/08/21 13:10

Client ID: PB28-03-SS01

Date Received: 06/08/21

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	79.4		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-23

Date Collected: 06/08/21 13:35

Client ID: PB28-01-SS01

Date Received: 06/08/21

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	82.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2130781-24

Date Collected: 06/08/21 13:50

Client ID: PB28-04-SS01

Date Received: 06/08/21

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	80.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16,19-20 QC Batch ID: WG1509649-1 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Solids, Total	79.9	80.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24 QC Batch ID: WG1509653-1 QC Sample: L2129334-01 Client ID: DUP Sample						
Solids, Total	90.8	91.5	%	1		20

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**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(*)
L2130781-01A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-01B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-02A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-02B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-03A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-03B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-03E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-04A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-04B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-05A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-05B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-06A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-06B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-07A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-07B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-08A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-08B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-09A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-09B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-10A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-10B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-11A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-11B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-12A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-12B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-13A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-13B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-14A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-14B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-15A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-15B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-16A	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16B	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-16C	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-16E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-17A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17F	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)
L2130781-18A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-18B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-19A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-19B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-19E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-19F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-20A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-20B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-20E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-20F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-21A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-21B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-21E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2130781**Project Number:** 200.00135.005**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-21F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-22A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-22B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-22E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-22F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-23A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-23B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-23E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-23F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-24A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-24B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-24E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-24F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-25A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25F	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25G	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25H	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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: PES REFINERY - AST CLOSURE
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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.

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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.

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

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-Terpeneol

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-Terpeneol; 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: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3285

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 project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
 Email results to edd@terrafase.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		
30781-01	PB27-03-5501	6/9	0730	S	TS
-02	PB27-04-5501		0745		TS
-03	PB27-05-5501		0755		TS
-04	PB27-06-5501		0810		TS
-05	PB27-07-5501		0815		TS
-06	PB27-08-5501		0840		TS
-07	PB27-09-5501		0855		TS
-08	PB27-10-5501		0905		TS
-09	PB27-12-5501		0935		TS
-10	PB27-13-5501		0950		TS

Container Type	G	G	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: 6/8-21 2030
 Received By: *[Signature]* Date/Time: 6/9/21 01:00

Date Rec'd in Lab: 6/9/21 ALPHA Job #: L2130781

Report Information Data Deliverables FAX EMAIL Add'l Deliverables
Billing Information Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits
 State/Fed Program: Criteria:

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
VOCs (8260)	Lead (6010B)														
<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"/>	5	
<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 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"/>		
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<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 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 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"/>		

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: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

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 project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/19/21

ALPHA Job #: L2130781

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

VOCs (8260)	Lead (6010B)	PA-8260 (SHORTLIST 1-2)	DISSOLVED METALS (LEAD)	9011														
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																	
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<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		
30781 -11	PB27-11 -5501	6/8	0955	↓	TS
-12	PB27-14 -5501		1025		TS
-13	PB27-15 -5501		1040		TS
-14	PB27-16 -5501		1050		TS
-15	PB27-17 -5501		1150		TS
-16	DUP-3		7:50		TS
-17	FB-210608-1		12:00		TS
-18	TB				TS

Container Type	G	G	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	-	-	-	-	-	-	-	-	-	-	-	-

Requisitioned By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/8	<i>[Signature]</i>	6/8/21 1534
<i>[Signature]</i>	6/8/21 1734	<i>[Signature]</i>	6/8/21 1800
<i>[Signature]</i>	6/9/21 01:00	<i>[Signature]</i>	6/8/21 21:30
<i>[Signature]</i>	6/9/21 01:00	<i>[Signature]</i>	6/9/21 01:00

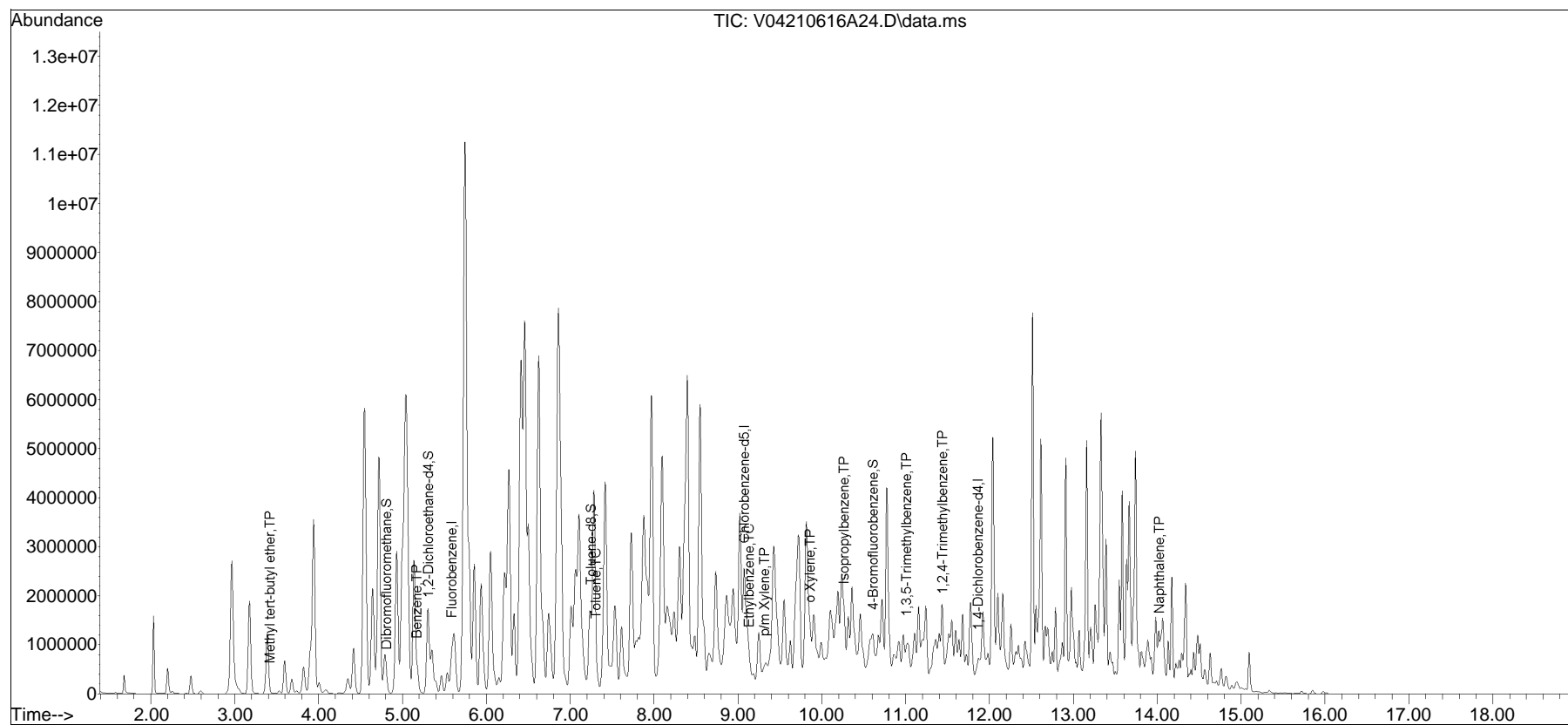
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
 Data File : V04210616A24.D
 Acq On : 16 Jun 2021 2:32 pm
 Operator : VOA104:AJK
 Sample : L2130781-05D,31H,7.35,5,0.040,,A
 Misc : WG1513068,ICAL18000
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 16 16:34:30 2021
 Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed May 26 11:45:26 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

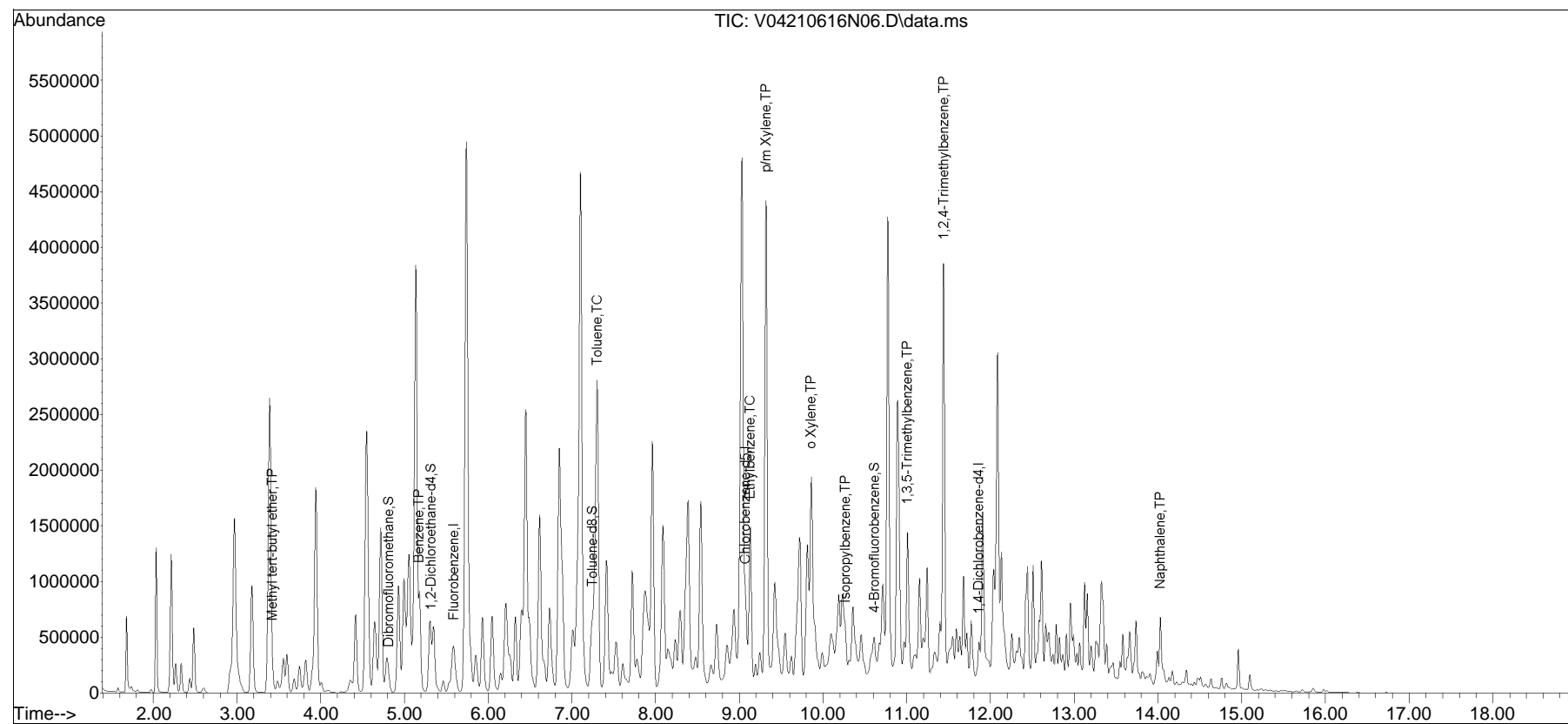


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616N\
Data File : V04210616N06.D
Acq On : 16 Jun 2021 6:43 pm
Operator : VOA104:JC
Sample : L2130781-08D2,31H,6.41,5,0.020,,A
Misc : WG1513068,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 17 09:41:59 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616N\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V04210616N01.D•

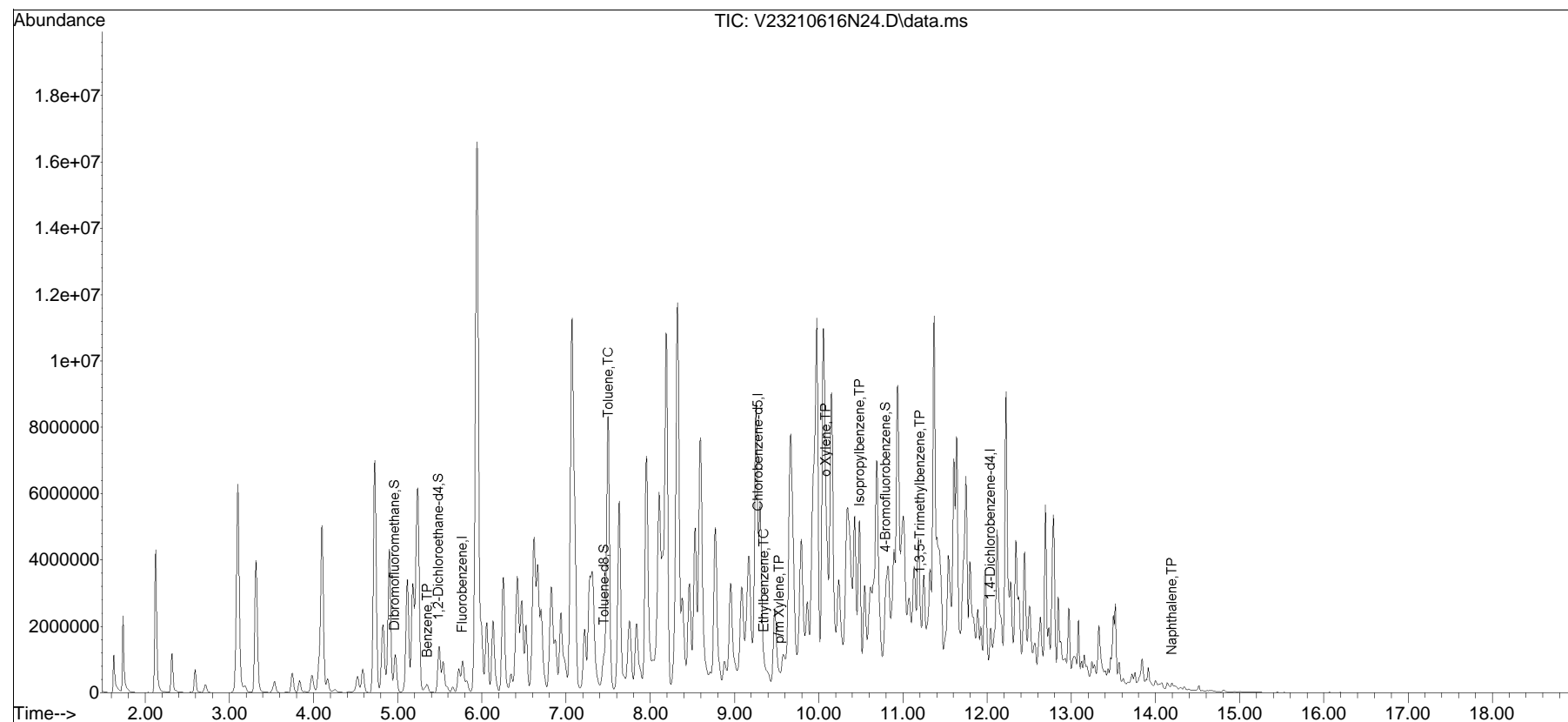


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N24.D
Acq On : 17 Jun 2021 03:33 am
Operator : VOA123:JC
Sample : L2130781-09,31,6.14,5,,B
Misc : WG1513390,ICAL18048
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 17 07:35:06 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•

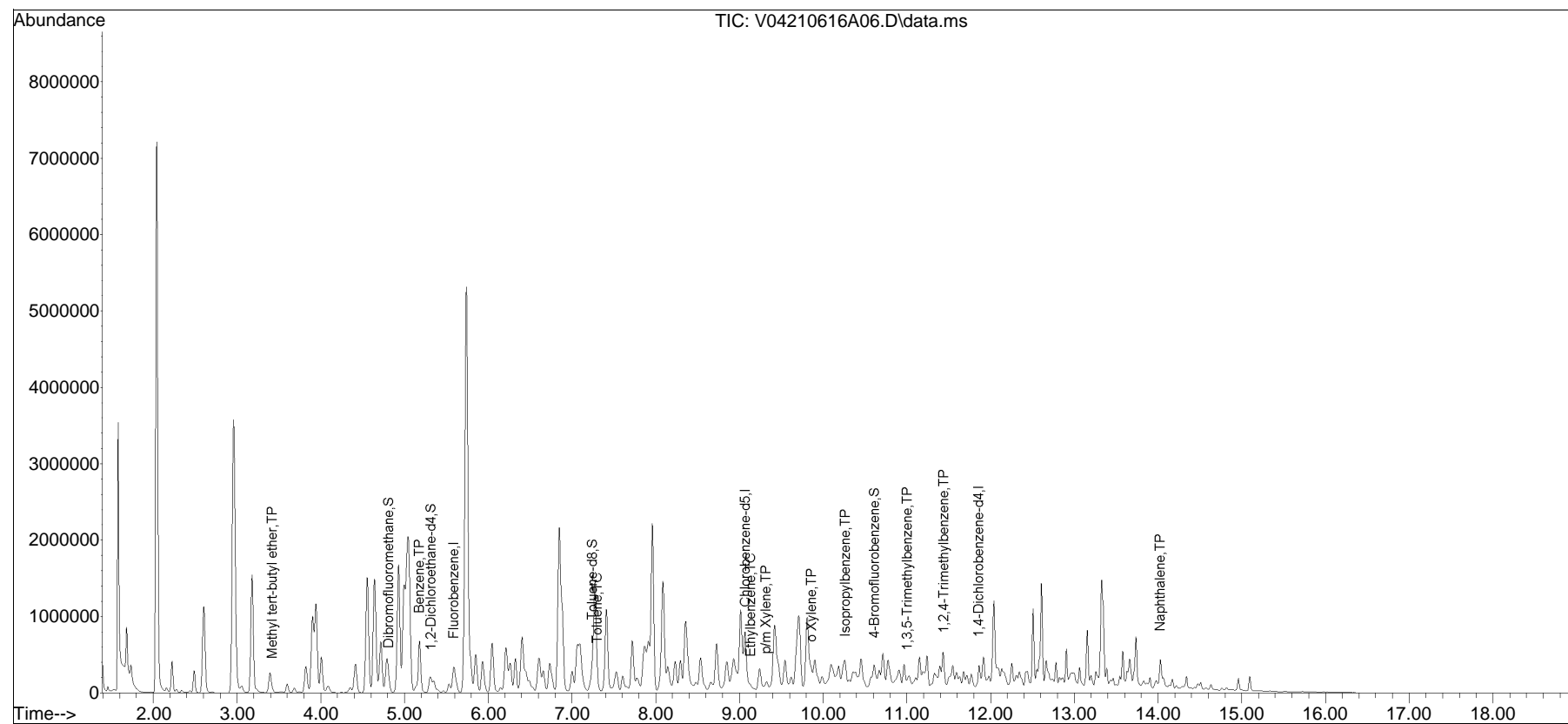


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A06.D
Acq On : 16 Jun 2021 6:58 am
Operator : VOA104:MV
Sample : L2130781-12,31,6.35,5,,B
Misc : WG1513067,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 16 07:52:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

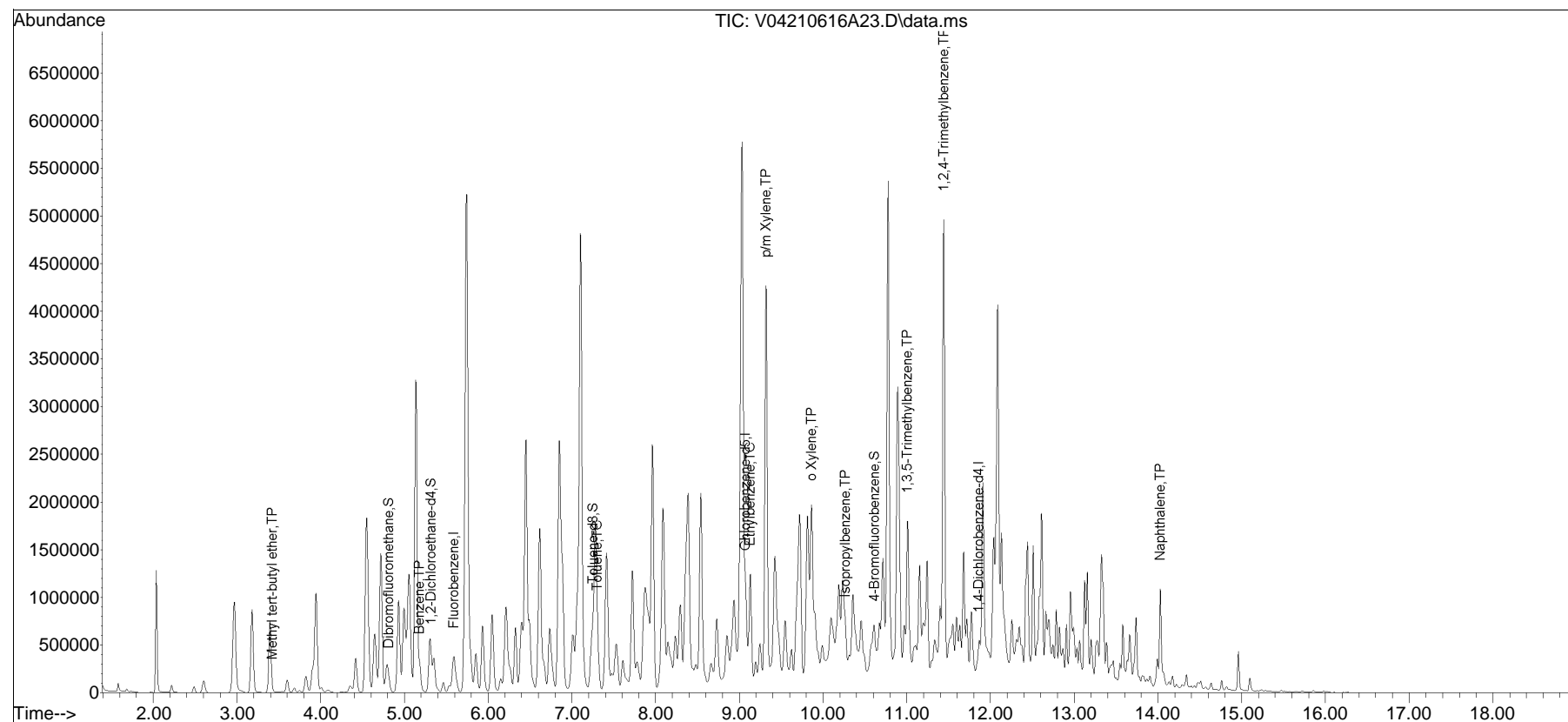


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A23.D
Acq On : 16 Jun 2021 2:06 pm
Operator : VOA104:AJK
Sample : L2130781-13D,31H,6.21,5,0.010,,A
Misc : WG1513068,ICAL18000
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 16 16:32:40 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

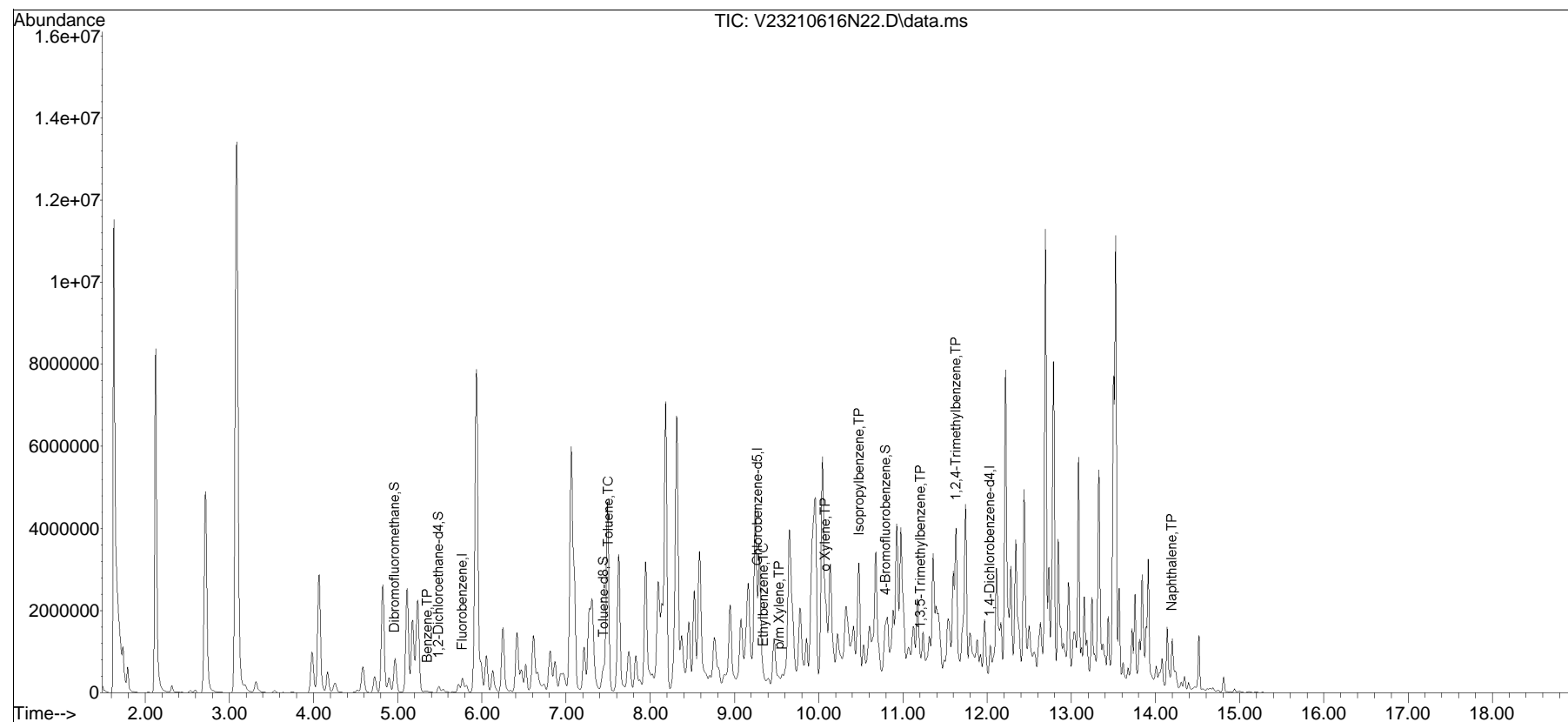


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N22.D
Acq On : 17 Jun 2021 02:43 am
Operator : VOA123:JC
Sample : L2130781-14,31,5.46,5,,B
Misc : WG1513390,ICAL18048
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 17 07:34:35 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•

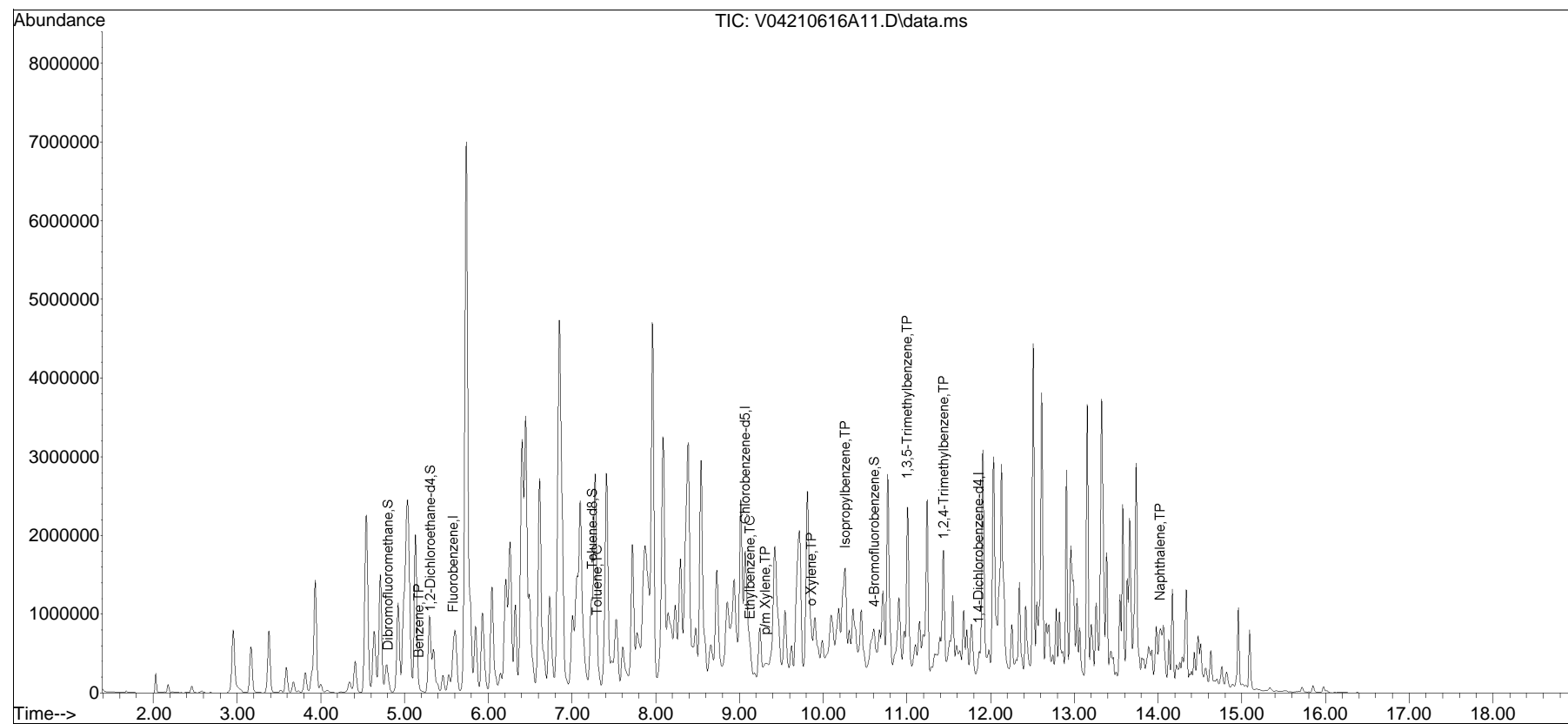


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A11.D
Acq On : 16 Jun 2021 9:04 am
Operator : VOA104:AJK
Sample : L2130781-15,31H,7.35,5,0.100,,A
Misc : WG1513068,ICAL18000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 16 16:10:28 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•





ANALYTICAL REPORT

Lab Number:	L2131108
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/08/21

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: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131108-01	PB28-16-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:00	06/09/21
L2131108-02	PB28-15-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:15	06/09/21
L2131108-03	PB28-12-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:30	06/09/21
L2131108-04	PB28-11-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:55	06/09/21
L2131108-05	PB28-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:05	06/09/21
L2131108-06	PB28-20-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:25	06/09/21
L2131108-07	PB28-21-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:40	06/09/21
L2131108-08	PB28-17-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:20	06/09/21
L2131108-09	PB28-18-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:40	06/09/21
L2131108-10	PB28-22-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:55	06/09/21
L2131108-11	PB29-01-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:10	06/09/21
L2131108-12	PB29-02-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:25	06/09/21
L2131108-13	PB29-03-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:45	06/09/21
L2131108-14	PB29-04-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:50	06/09/21
L2131108-15	PB29-05-SS01	SOIL	PHILADELPHIA, PA	06/09/21 12:50	06/09/21
L2131108-16	PB29-06-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:00	06/09/21
L2131108-17	PB29-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:15	06/09/21
L2131108-18	PB29-08-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:20	06/09/21
L2131108-19	PB29-09-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:35	06/09/21
L2131108-20	PB29-10-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:55	06/09/21
L2131108-21	FB-210609-1	WATER	PHILADELPHIA, PA	06/09/21 12:00	06/09/21
L2131108-22	FB-210609-2	WATER	PHILADELPHIA, PA	06/09/21 14:00	06/09/21
L2131108-23	DUP-4	SOIL	PHILADELPHIA, PA	06/09/21 08:10	06/09/21

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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

L2131108-05D: 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.

L2131108-07: 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.

L2131108-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); 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.

L2131108-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (152%); 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.

L2131108-10: 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.

L2131108-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (158%) and 4-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.

L2131108-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-17: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (161%) and 4-

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Case Narrative (continued)

bromofluorobenzene (154%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-17: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (61%) due to interference with the Internal Standard.

L2131108-20D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (137%) and 4-bromofluorobenzene (137%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

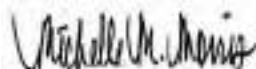
Semivolatile Organics by SIM

L2131108-05D, -12D, -13D, -15D, -18D, -19D, and -20D: 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.

L2131108-08D, -11D and -18D: 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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/08/21

ORGANICS

VOLATILES

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-01
 Client ID: PB28-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 09:38
 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	0.0020	0.00020	1
Benzene	0.00018	J	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	0.00064	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00064	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.014		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	90		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
 Client ID: PB28-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:15
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 20:48
 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	0.0018	J	mg/kg	0.0019	0.00019	1
Benzene	0.0027		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	0.0041		mg/kg	0.00097	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.00052	J	mg/kg	0.00097	0.00014	1
p/m-Xylene	0.00070	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00028	J	mg/kg	0.00097	0.00028	1
Xylenes, Total	0.00098	J	mg/kg	0.00097	0.00028	1
Isopropylbenzene	0.0060		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	0.00028	J	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	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
 Client ID: PB28-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:30
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 22:32
 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	0.0018	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	0.00018	J	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	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04
 Client ID: PB28-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 21:14
 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	0.0018	0.00018	1
Benzene	0.0017		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.049		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0052		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.019		mg/kg	0.0018	0.00050	1
o-Xylene	0.0079		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.027		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.00037	J	mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.00093	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0028		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	96		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05 D
 Client ID: PB28-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:05
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 23:25
 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	0.47	0.048	4
Benzene	ND		mg/kg	0.12	0.039	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	ND		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.069	4
Ethylbenzene	6.9		mg/kg	0.24	0.033	4
p/m-Xylene	1.9		mg/kg	0.47	0.13	4
o-Xylene	0.092	J	mg/kg	0.24	0.069	4
Xylenes, Total	2.0	J	mg/kg	0.24	0.069	4
Isopropylbenzene	7.6		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	7.7		mg/kg	0.47	0.046	4
1,2,4-Trimethylbenzene	70.		mg/kg	0.47	0.079	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	147	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06
 Client ID: PB28-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:25
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 21:40
 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	0.13	0.013	1
Benzene	0.36		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.040	J	mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.7		mg/kg	0.064	0.0090	1
p/m-Xylene	0.32		mg/kg	0.13	0.036	1
o-Xylene	0.14		mg/kg	0.064	0.018	1
Xylenes, Total	0.46		mg/kg	0.064	0.018	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
 Client ID: PB28-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/16/21 23:51
 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	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.017	J	mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	1.3		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	92		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
 Client ID: PB28-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 10:04
 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	0.00053	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	0.00059	1
o-Xylene	0.00044	J	mg/kg	0.0011	0.00031	1
Xylenes, Total	0.00044	J	mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.027		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	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	95		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08
 Client ID: PB28-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:20
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 09:12
 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	0.0023	0.00024	1
Benzene	0.0041		mg/kg	0.00059	0.00019	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	0.00034	1
Ethylbenzene	0.00052	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.0012		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0018	J	mg/kg	0.0023	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
 Client ID: PB28-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:40
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 10:31
 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	0.00044	J	mg/kg	0.0035	0.00035	1
Benzene	0.0030		mg/kg	0.00088	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00045	1
Toluene	0.0017	J	mg/kg	0.0018	0.00096	1
1,2-Dibromoethane	ND		mg/kg	0.00088	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.0038		mg/kg	0.0035	0.00099	1
o-Xylene	0.0016	J	mg/kg	0.0018	0.00051	1
Xylenes, Total	0.0054	J	mg/kg	0.0018	0.00051	1
Isopropylbenzene	0.00023	J	mg/kg	0.0018	0.00019	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.0012	J	mg/kg	0.0035	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
 Client ID: PB28-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 20:26
 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	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	ND		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.015	J	mg/kg	0.063	0.0088	1
p/m-Xylene	0.086	J	mg/kg	0.12	0.035	1
o-Xylene	ND		mg/kg	0.063	0.018	1
Xylenes, Total	0.086	J	mg/kg	0.063	0.018	1
Isopropylbenzene	1.8		mg/kg	0.063	0.0068	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	103		70-130
Toluene-d8	158	Q	70-130
4-Bromofluorobenzene	160	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11
 Client ID: PB29-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 14:30
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.056	J	mg/kg	0.12	0.012	1
Benzene	3.5		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.28		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	14.		mg/kg	0.059	0.0083	1
p/m-Xylene	32.		mg/kg	0.12	0.033	1
o-Xylene	0.97		mg/kg	0.059	0.017	1
Xylenes, Total	33.		mg/kg	0.059	0.017	1
Isopropylbenzene	1.1		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	9.6		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	75		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11 D
 Client ID: PB29-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 20:51
 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						
1,2,4-Trimethylbenzene	32.		mg/kg	0.24	0.039	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D2
 Client ID: PB29-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:25
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 17:01
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	1.1	0.11	10
Benzene	8.6		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	110		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	62.		mg/kg	0.56	0.079	10
p/m-Xylene	280		mg/kg	1.1	0.32	10
o-Xylene	100		mg/kg	0.56	0.16	10
Xylenes, Total	380		mg/kg	0.56	0.16	10
Isopropylbenzene	4.5		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	60.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	180	E	mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D
 Client ID: PB29-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:25
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 21:17
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	190		mg/kg	2.2	0.38	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13 D2
 Client ID: PB29-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 16:11
 Analyst: NLK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	22.		mg/kg	2.4	0.24	20
Benzene	93.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.31	20
Toluene	580	E	mg/kg	1.2	0.66	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	220		mg/kg	1.2	0.17	20
p/m-Xylene	850	E	mg/kg	2.4	0.68	20
o-Xylene	320		mg/kg	1.2	0.35	20
Isopropylbenzene	19.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	20
1,2,4-Trimethylbenzene	530	E	mg/kg	2.4	0.41	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13 D
 Client ID: PB29-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 21:42
 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						
Toluene	540		mg/kg	3.0	1.6	50
p/m-Xylene	830		mg/kg	6.1	1.7	50
Xylenes, Total	1200		mg/kg	1.2	0.35	50
1,2,4-Trimethylbenzene	500		mg/kg	6.1	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
 Client ID: PB29-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 14:55
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.11	0.011	1
Benzene	1.1		mg/kg	0.028	0.0094	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.39		mg/kg	0.056	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	14.		mg/kg	0.056	0.0080	1
p/m-Xylene	57.	E	mg/kg	0.11	0.032	1
o-Xylene	23.		mg/kg	0.056	0.016	1
Isopropylbenzene	1.8		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	6.4		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14 D
 Client ID: PB29-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 22:07
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	60.		mg/kg	0.45	0.13	4
Xylenes, Total	83.		mg/kg	0.056	0.016	4
1,2,4-Trimethylbenzene	19.		mg/kg	0.45	0.075	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15 D2
Client ID: PB29-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 16:36
Analyst: NLK
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	2.3	0.24	20
Benzene	8.9		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	0.67	J	mg/kg	1.2	0.64	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	190		mg/kg	1.2	0.16	20
p/m-Xylene	400		mg/kg	2.3	0.66	20
o-Xylene	5.1		mg/kg	1.2	0.34	20
Xylenes, Total	400		mg/kg	1.2	0.34	20
Isopropylbenzene	17.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	110		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	570	E	mg/kg	2.3	0.39	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15 D
 Client ID: PB29-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 22:32
 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						
1,2,4-Trimethylbenzene	540		mg/kg	5.8	0.98	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 D2
 Client ID: PB29-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 14:05
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.042	J	mg/kg	0.24	0.024	2
Benzene	5.5		mg/kg	0.060	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	40.	E	mg/kg	0.12	0.065	2
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	2
Ethylbenzene	19.		mg/kg	0.12	0.017	2
p/m-Xylene	78.	E	mg/kg	0.24	0.067	2
o-Xylene	25.		mg/kg	0.12	0.035	2
Isopropylbenzene	1.3		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	13.		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	39.	E	mg/kg	0.24	0.040	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	85		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 D
 Client ID: PB29-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 22:58
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	37.		mg/kg	0.24	0.13	4
p/m-Xylene	75.		mg/kg	0.48	0.13	4
Xylenes, Total	100		mg/kg	0.12	0.035	4
1,2,4-Trimethylbenzene	37.		mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17
 Client ID: PB29-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:15
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 15:20
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.2		mg/kg	0.12	0.012	1
Benzene	12.		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.016	1
Toluene	7.7		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	10.		mg/kg	0.060	0.0085	1
p/m-Xylene	34.		mg/kg	0.12	0.034	1
o-Xylene	12.		mg/kg	0.060	0.018	1
Xylenes, Total	46.		mg/kg	0.060	0.018	1
Isopropylbenzene	3.0		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	7.9		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	161	Q	70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	61	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17 D
 Client ID: PB29-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:15
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 23:23
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	24.		mg/kg	0.48	0.081	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D2
 Client ID: PB29-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 15:46
 Analyst: NLK
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.6	0.36	25
Benzene	22.		mg/kg	0.91	0.30	25
1,2-Dichloroethane	ND		mg/kg	1.8	0.47	25
Toluene	5.0		mg/kg	1.8	0.99	25
1,2-Dibromoethane	ND		mg/kg	0.91	0.53	25
Ethylbenzene	290		mg/kg	1.8	0.26	25
p/m-Xylene	1300	E	mg/kg	3.6	1.0	25
o-Xylene	250		mg/kg	1.8	0.53	25
Isopropylbenzene	30.		mg/kg	1.8	0.20	25
1,3,5-Trimethylbenzene	260		mg/kg	3.6	0.35	25
1,2,4-Trimethylbenzene	720	E	mg/kg	3.6	0.61	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D
 Client ID: PB29-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/17/21 23:48
 Analyst: JC
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	1300		mg/kg	7.3	2.0	50
Xylenes, Total	1600		mg/kg	1.8	0.53	50
1,2,4-Trimethylbenzene	680		mg/kg	7.3	1.2	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19 D2
 Client ID: PB29-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 17:26
 Analyst: NLK
 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	1.2	0.12	10
Benzene	0.10	J	mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.62	0.16	10
Toluene	0.78		mg/kg	0.62	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	150		mg/kg	0.62	0.087	10
p/m-Xylene	660	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.62	0.18	10
Isopropylbenzene	18.		mg/kg	0.62	0.067	10
1,3,5-Trimethylbenzene	110		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	340	E	mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19 D
 Client ID: PB29-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 00:14
 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						
p/m-Xylene	630		mg/kg	4.9	1.4	40
Xylenes, Total	800		mg/kg	0.62	0.18	40
1,2,4-Trimethylbenzene	320		mg/kg	4.9	0.82	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D2
 Client ID: PB29-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 13:40
 Analyst: NLK
 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	0.48	0.048	4
Benzene	24.		mg/kg	0.12	0.040	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	1.5		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.070	4
Ethylbenzene	74.	E	mg/kg	0.24	0.034	4
p/m-Xylene	170	E	mg/kg	0.48	0.13	4
o-Xylene	2.8		mg/kg	0.24	0.069	4
Isopropylbenzene	8.5		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	26.		mg/kg	0.48	0.046	4
1,2,4-Trimethylbenzene	72.	E	mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	137	Q	70-130
4-Bromofluorobenzene	137	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D
 Client ID: PB29-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 00:39
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	77.		mg/kg	0.60	0.084	10
p/m-Xylene	180		mg/kg	1.2	0.33	10
Xylenes, Total	180		mg/kg	0.24	0.069	10
1,2,4-Trimethylbenzene	82.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	84		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
 Client ID: FB-210609-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/15/21 13:57
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/15/21 11:25

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
 Client ID: FB-210609-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 10:30
 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	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	109		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
 Client ID: FB-210609-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/15/21 14:03
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/15/21 11:25

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
 Client ID: FB-210609-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 10:54
 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	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	114		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23
Client ID: DUP-4
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:57
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	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00067	J	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	0.00074	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00074	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.016		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	84		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	89		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/15/21 12:36
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-22 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-04 Batch: WG1513396-5					
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	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-07 Batch: WG1513397-5					
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	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,07-08 Batch: WG1513560-5					
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	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,23 Batch: WG1513938-5					
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	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	107		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-22 Batch: WG1513956-5					
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	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/18/21 13:15
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11-20 Batch: WG1513964-10					
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	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	109		70-130



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 19:36
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10-20 Batch: WG1513964-5					
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	103		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

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): 21-22 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-04 Batch: WG1513396-3 WG1513396-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	68	Q	69	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-07 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	68	Q	69	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,07-08 Batch: WG1513560-3 WG1513560-4								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,23 Batch: WG1513938-3 WG1513938-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	92		90		70-130	2		30
1,2-Dichloroethane	91		89		70-130	2		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	102		100		70-130	2		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	102		101		70-130	1		30
o-Xylene	102		100		70-130	2		30
Isopropylbenzene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	99		98		70-130	1		30
1,2,4-Trimethylbenzene	99		98		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	102		101		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-22 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		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	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10-20 Batch: WG1513964-3 WG1513964-4								
Methyl tert butyl ether	95		96		66-130	1		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	95		96		70-130	1		30
Toluene	104		101		70-130	3		30
1,2-Dibromoethane	100		102		70-130	2		30
Ethylbenzene	106		103		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	99		97		70-130	2		30
Isopropylbenzene	111		107		70-130	4		30
1,3,5-Trimethylbenzene	106		105		70-130	1		30
1,2,4-Trimethylbenzene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	95		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11-20 Batch: WG1513964-8 WG1513964-9								
Methyl tert butyl ether	103		106		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	102		104		70-130	2		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	107		110		70-130	3		30
Ethylbenzene	111		110		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	115		113		70-130	2		30
1,3,5-Trimethylbenzene	112		109		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		95		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	96		97		70-130



SEMIVOLATILES



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-01
 Client ID: PB28-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 12:27
 Analyst: JJW
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.042		mg/kg	0.0083	0.0015	1
Fluorene	0.28		mg/kg	0.0083	0.00099	1
Phenanthrene	0.32		mg/kg	0.0083	0.00070	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	0.0087		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.00099	J	mg/kg	0.0083	0.00078	1
Chrysene	0.0011	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	64		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
 Client ID: PB28-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:15
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 12:44
 Analyst: JJW
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0018	J	mg/kg	0.0083	0.0015	1
Fluorene	0.0011	J	mg/kg	0.0083	0.0010	1
Phenanthrene	0.0024	J	mg/kg	0.0083	0.00071	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	ND		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	ND		mg/kg	0.0083	0.00079	1
Chrysene	ND		mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	69		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:30
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 13:01
Analyst: JJW
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		mg/kg	0.0082	0.0015	1
Fluorene	ND		mg/kg	0.0082	0.00098	1
Phenanthrene	ND		mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	ND		mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	77		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04
 Client ID: PB28-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 13:17
 Analyst: JJW
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0015	J	mg/kg	0.0078	0.0014	1
Fluorene	0.0013	J	mg/kg	0.0078	0.00094	1
Phenanthrene	ND		mg/kg	0.0078	0.00066	1
Anthracene	ND		mg/kg	0.0078	0.00062	1
Pyrene	ND		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	ND		mg/kg	0.0078	0.00074	1
Chrysene	ND		mg/kg	0.0078	0.00058	1
Benzo(b)fluoranthene	ND		mg/kg	0.0078	0.00074	1
Benzo(a)pyrene	ND		mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	ND		mg/kg	0.0078	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05 D
 Client ID: PB28-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:05
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 16:47
 Analyst: JJW
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	21.		mg/kg	0.32	0.058	40
Fluorene	0.64		mg/kg	0.32	0.038	40
Phenanthrene	0.92		mg/kg	0.32	0.027	40
Anthracene	ND		mg/kg	0.32	0.026	40
Pyrene	0.12	J	mg/kg	0.32	0.022	40
Benzo(a)anthracene	0.030	J	mg/kg	0.32	0.030	40
Chrysene	0.045	J	mg/kg	0.32	0.024	40
Benzo(b)fluoranthene	ND		mg/kg	0.32	0.030	40
Benzo(a)pyrene	ND		mg/kg	0.32	0.038	40
Benzo(ghi)perylene	ND		mg/kg	0.32	0.027	40

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06 D
 Client ID: PB28-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:25
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 17:04
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.34		mg/kg	0.040	0.0072	5
Fluorene	2.0		mg/kg	0.040	0.0048	5
Phenanthrene	3.0		mg/kg	0.040	0.0034	5
Anthracene	ND		mg/kg	0.040	0.0032	5
Pyrene	0.098		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.0064	J	mg/kg	0.040	0.0038	5
Chrysene	0.0042	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	235	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	91		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
 Client ID: PB28-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 14:56
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0081	0.0014	1
Fluorene	0.47		mg/kg	0.0081	0.00097	1
Phenanthrene	0.36		mg/kg	0.0081	0.00069	1
Anthracene	ND		mg/kg	0.0081	0.00065	1
Pyrene	0.018		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0023	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0033	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0014	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0011	J	mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	46		30-120
4-Terphenyl-d14	49		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08 D
 Client ID: PB28-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:20
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 19:18
 Analyst: JJW
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.078		mg/kg	0.039	0.0071	5
Fluorene	0.040		mg/kg	0.039	0.0047	5
Phenanthrene	0.36		mg/kg	0.039	0.0033	5
Anthracene	0.11		mg/kg	0.039	0.0031	5
Pyrene	0.62		mg/kg	0.039	0.0028	5
Benzo(a)anthracene	0.61		mg/kg	0.039	0.0037	5
Chrysene	0.53		mg/kg	0.039	0.0030	5
Benzo(b)fluoranthene	0.95		mg/kg	0.039	0.0037	5
Benzo(a)pyrene	0.82		mg/kg	0.039	0.0047	5
Benzo(ghi)perylene	0.46		mg/kg	0.039	0.0033	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	74		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
 Client ID: PB28-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:40
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 16:34
 Analyst: JJW
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.016		mg/kg	0.0084	0.00071	1
Anthracene	0.0036	J	mg/kg	0.0084	0.00067	1
Pyrene	0.019		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.021		mg/kg	0.0084	0.00080	1
Chrysene	0.017		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.031		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.029		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.027		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	60		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
 Client ID: PB28-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/22/21 13:34
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	0.13		mg/kg	0.0081	0.0014	1
Fluorene	0.0038	J	mg/kg	0.0081	0.00097	1
Phenanthrene	0.0051	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0012	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0032	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0019	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0015	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0011	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11 D
 Client ID: PB29-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 17:20
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	3.6		mg/kg	0.080	0.014	10
Fluorene	0.022	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	J	mg/kg	0.080	0.0068	10
Anthracene	0.015	J	mg/kg	0.080	0.0064	10
Pyrene	0.038	J	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	0.024	J	mg/kg	0.080	0.0076	10
Chrysene	0.013	J	mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	0.017	J	mg/kg	0.080	0.0076	10
Benzo(a)pyrene	0.013	J	mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	185	Q	23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	97		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D
 Client ID: PB29-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:25
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 17:36
 Analyst: JJW
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	41.		mg/kg	0.41	0.074	50
Fluorene	0.36	J	mg/kg	0.41	0.050	50
Phenanthrene	0.49		mg/kg	0.41	0.035	50
Anthracene	0.083	J	mg/kg	0.41	0.033	50
Pyrene	0.19	J	mg/kg	0.41	0.029	50
Benzo(a)anthracene	0.068	J	mg/kg	0.41	0.039	50
Chrysene	0.048	J	mg/kg	0.41	0.031	50
Benzo(b)fluoranthene	ND		mg/kg	0.41	0.039	50
Benzo(a)pyrene	ND		mg/kg	0.41	0.050	50
Benzo(ghi)perylene	0.056	J	mg/kg	0.41	0.035	50

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13 D
 Client ID: PB29-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 17:53
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	27.		mg/kg	0.39	0.071	50
Fluorene	0.12	J	mg/kg	0.39	0.047	50
Phenanthrene	0.24	J	mg/kg	0.39	0.034	50
Anthracene	0.047	J	mg/kg	0.39	0.032	50
Pyrene	0.12	J	mg/kg	0.39	0.028	50
Benzo(a)anthracene	0.063	J	mg/kg	0.39	0.038	50
Chrysene	0.036	J	mg/kg	0.39	0.030	50
Benzo(b)fluoranthene	0.041	J	mg/kg	0.39	0.038	50
Benzo(a)pyrene	ND		mg/kg	0.39	0.047	50
Benzo(ghi)perylene	ND		mg/kg	0.39	0.034	50

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14 D
 Client ID: PB29-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 18:09
 Analyst: JJW
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.1		mg/kg	0.041	0.0074	5
Fluorene	0.0076	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.012	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0064	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	0.0066	J	mg/kg	0.041	0.0039	5
Chrysene	0.0031	J	mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	0.0051	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	207	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	75		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15 D
 Client ID: PB29-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 18:25
 Analyst: JJW
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	24.		mg/kg	0.31	0.055	40
Fluorene	0.20	J	mg/kg	0.31	0.037	40
Phenanthrene	0.35		mg/kg	0.31	0.026	40
Anthracene	0.060	J	mg/kg	0.31	0.024	40
Pyrene	0.18	J	mg/kg	0.31	0.021	40
Benzo(a)anthracene	0.077	J	mg/kg	0.31	0.029	40
Chrysene	0.054	J	mg/kg	0.31	0.023	40
Benzo(b)fluoranthene	0.087	J	mg/kg	0.31	0.029	40
Benzo(a)pyrene	0.072	J	mg/kg	0.31	0.037	40
Benzo(ghi)perylene	0.083	J	mg/kg	0.31	0.026	40

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 D
 Client ID: PB29-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 18:42
 Analyst: JJW
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.4		mg/kg	0.041	0.0073	5
Fluorene	0.017	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.032	J	mg/kg	0.041	0.0035	5
Anthracene	0.0081	J	mg/kg	0.041	0.0032	5
Pyrene	0.015	J	mg/kg	0.041	0.0028	5
Benzo(a)anthracene	0.0086	J	mg/kg	0.041	0.0039	5
Chrysene	0.0049	J	mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	0.0063	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	0.0049	J	mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	0.0035	J	mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	161	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17 D
 Client ID: PB29-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:15
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 18:58
 Analyst: JJW
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.5		mg/kg	0.040	0.0073	5
Fluorene	0.018	J	mg/kg	0.040	0.0048	5
Phenanthrene	0.058		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.030	J	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.014	J	mg/kg	0.040	0.0038	5
Chrysene	0.010	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.0099	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.0083	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.0038	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	185	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D
 Client ID: PB29-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 17:11
 Analyst: DV
 Percent Solids: 77%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	79.		mg/kg	2.1	0.38	250
Fluorene	0.72	J	mg/kg	2.1	0.25	250
Phenanthrene	1.2	J	mg/kg	2.1	0.18	250
Anthracene	0.20	J	mg/kg	2.1	0.17	250
Pyrene	0.52	J	mg/kg	2.1	0.15	250
Benzo(a)anthracene	0.25	J	mg/kg	2.1	0.20	250
Chrysene	ND		mg/kg	2.1	0.16	250
Benzo(b)fluoranthene	ND		mg/kg	2.1	0.20	250
Benzo(a)pyrene	ND		mg/kg	2.1	0.25	250
Benzo(ghi)perylene	ND		mg/kg	2.1	0.18	250

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19 D
 Client ID: PB29-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 19:31
 Analyst: JJW
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	25.		mg/kg	0.38	0.069	50
Fluorene	0.075	J	mg/kg	0.38	0.046	50
Phenanthrene	0.11	J	mg/kg	0.38	0.033	50
Anthracene	ND		mg/kg	0.38	0.031	50
Pyrene	0.048	J	mg/kg	0.38	0.027	50
Benzo(a)anthracene	ND		mg/kg	0.38	0.036	50
Chrysene	ND		mg/kg	0.38	0.029	50
Benzo(b)fluoranthene	ND		mg/kg	0.38	0.036	50
Benzo(a)pyrene	ND		mg/kg	0.38	0.046	50
Benzo(ghi)perylene	ND		mg/kg	0.38	0.033	50

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D
 Client ID: PB29-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:55
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/23/21 19:47
 Analyst: JJW
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	16.		mg/kg	0.16	0.029	20
Fluorene	0.084	J	mg/kg	0.16	0.019	20
Phenanthrene	0.14	J	mg/kg	0.16	0.014	20
Anthracene	0.029	J	mg/kg	0.16	0.013	20
Pyrene	0.067	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.034	J	mg/kg	0.16	0.015	20
Chrysene	0.018	J	mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	0.018	J	mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
 Client ID: FB-210609-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/16/21 12:26
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 06/15/21 23:34

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	74		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	90		41-149



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
 Client ID: FB-210609-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/16/21 12:46
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 06/15/21 23:34

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	80		23-120
2-Fluorobiphenyl	80		15-120
4-Terphenyl-d14	98		41-149

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23
 Client ID: DUP-4
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:10
 Date Received: 06/09/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 22:53
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0095		mg/kg	0.0081	0.0015	1
Fluorene	0.13		mg/kg	0.0081	0.00098	1
Phenanthrene	0.16		mg/kg	0.0081	0.00069	1
Anthracene	0.020		mg/kg	0.0081	0.00065	1
Pyrene	0.0045	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0011	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00061	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00081	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	64		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 06/15/21 16:48
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 06/15/21 03:32

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 21-22 Batch: WG1512041-1					
Naphthalene	0.10	J	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
2-Fluorophenol	66		21-120
Phenol-d6	57		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	82		15-120
2,4,6-Tribromophenol	123	Q	10-120
4-Terphenyl-d14	100		41-149



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 12:11
Analyst: JJW

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-20 Batch: WG1514486-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	84		10-120
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	73		30-120
2,4,6-Tribromophenol	85		10-136
4-Terphenyl-d14	70		18-120



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 22:36
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/23/21 20:18

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23 Batch: WG1516237-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	86		10-120
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	60		30-120
2,4,6-Tribromophenol	65		10-136
4-Terphenyl-d14	61		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 21-22 Batch: WG1512041-2 WG1512041-3								
Naphthalene	81		92		40-140	13		40
Fluorene	84		95		40-140	12		40
Phenanthrene	82		90		40-140	9		40
Anthracene	89		100		40-140	12		40
Pyrene	89		97		26-127	9		40
Benzo(a)anthracene	85		91		40-140	7		40
Chrysene	89		98		40-140	10		40
Benzo(b)fluoranthene	85		92		40-140	8		40
Benzo(a)pyrene	90		99		40-140	10		40
Benzo(ghi)perylene	91		99		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		79		21-120
Phenol-d6	58		67		10-120
Nitrobenzene-d5	78		88		23-120
2-Fluorobiphenyl	75		90		15-120
2,4,6-Tribromophenol	131	Q	144	Q	10-120
4-Terphenyl-d14	95		103		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-20 Batch: WG1514486-2 WG1514486-3								
Naphthalene	61		73		40-140	18		50
Fluorene	67		74		40-140	10		50
Phenanthrene	66		72		40-140	9		50
Anthracene	72		78		40-140	8		50
Pyrene	72		78		35-142	8		50
Benzo(a)anthracene	74		80		40-140	8		50
Chrysene	66		74		40-140	11		50
Benzo(b)fluoranthene	72		80		40-140	11		50
Benzo(a)pyrene	75		83		40-140	10		50
Benzo(ghi)perylene	70		76		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	70		80		25-120
Phenol-d6	71		81		10-120
Nitrobenzene-d5	72		82		23-120
2-Fluorobiphenyl	62		69		30-120
2,4,6-Tribromophenol	79		85		10-136
4-Terphenyl-d14	62		68		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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: WG1516237-2 WG1516237-3								
Naphthalene	82		79		40-140	4		50
Fluorene	89		87		40-140	2		50
Phenanthrene	89		86		40-140	3		50
Anthracene	98		96		40-140	2		50
Pyrene	86		81		35-142	6		50
Benzo(a)anthracene	95		96		40-140	1		50
Chrysene	77		76		40-140	1		50
Benzo(b)fluoranthene	104		97		40-140	7		50
Benzo(a)pyrene	98		95		40-140	3		50
Benzo(ghi)perylene	91		88		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	95		92		25-120
Phenol-d6	100		97		10-120
Nitrobenzene-d5	121	Q	117		23-120
2-Fluorobiphenyl	67		66		30-120
2,4,6-Tribromophenol	76		74		10-136
4-Terphenyl-d14	73		70		18-120



METALS



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-01

Date Collected: 06/09/21 08:00

Client ID: PB28-16-SS01

Date Received: 06/09/21

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	7.88		mg/kg	2.41	0.129	1	06/17/21 10:25	07/05/21 13:15	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02

Date Collected: 06/09/21 08:15

Client ID: PB28-15-SS01

Date Received: 06/09/21

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	6.85		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 13:02	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03

Date Collected: 06/09/21 08:30

Client ID: PB28-12-SS01

Date Received: 06/09/21

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	8.70		mg/kg	2.42	0.129	1	06/17/21 10:25	07/05/21 13:06	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04

Date Collected: 06/09/21 08:55

Client ID: PB28-11-SS01

Date Received: 06/09/21

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	9.22		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 13:11	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05

Date Collected: 06/09/21 09:05

Client ID: PB28-07-SS01

Date Received: 06/09/21

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	10.9		mg/kg	2.36	0.126	1	06/17/21 10:25	07/05/21 13:45	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06

Date Collected: 06/09/21 09:25

Client ID: PB28-20-SS01

Date Received: 06/09/21

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	9.59		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 13:52	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07

Date Collected: 06/09/21 09:40

Client ID: PB28-21-SS01

Date Received: 06/09/21

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	6.90		mg/kg	2.35	0.126	1	06/17/21 10:25	07/05/21 13:56	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08

Date Collected: 06/09/21 10:20

Client ID: PB28-17-SS01

Date Received: 06/09/21

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	19.0		mg/kg	2.25	0.120	1	06/17/21 10:25	07/05/21 14:01	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09

Date Collected: 06/09/21 10:40

Client ID: PB28-18-SS01

Date Received: 06/09/21

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	313		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 14:05	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
 Client ID: PB28-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:55
 Date Received: 06/09/21
 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	9.34		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:09	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-11

Date Collected: 06/09/21 11:10

Client ID: PB29-01-SS01

Date Received: 06/09/21

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	2.40	0.129	1	06/17/21 10:25	07/05/21 14:39	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-12

Date Collected: 06/09/21 11:25

Client ID: PB29-02-SS01

Date Received: 06/09/21

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	1180		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 14:43	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13

Date Collected: 06/09/21 11:45

Client ID: PB29-03-SS01

Date Received: 06/09/21

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	7.53		mg/kg	2.39	0.128	1	06/17/21 10:25	07/05/21 14:47	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14

Date Collected: 06/09/21 11:50

Client ID: PB29-04-SS01

Date Received: 06/09/21

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	8.20		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:52	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15

Date Collected: 06/09/21 12:50

Client ID: PB29-05-SS01

Date Received: 06/09/21

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	282		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 14:56	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16

Date Collected: 06/09/21 13:00

Client ID: PB29-06-SS01

Date Received: 06/09/21

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	8.52		mg/kg	2.32	0.125	1	06/17/21 10:25	07/05/21 15:00	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17

Date Collected: 06/09/21 13:15

Client ID: PB29-07-SS01

Date Received: 06/09/21

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	8.23		mg/kg	2.38	0.128	1	06/17/21 10:25	07/05/21 15:05	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18

Date Collected: 06/09/21 13:20

Client ID: PB29-08-SS01

Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	98.7		mg/kg	2.48	0.133	1	06/17/21 10:25	07/05/21 15:09	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19

Date Collected: 06/09/21 13:35

Client ID: PB29-09-SS01

Date Received: 06/09/21

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	17.2		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 15:14	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20

Date Collected: 06/09/21 13:55

Client ID: PB29-10-SS01

Date Received: 06/09/21

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	9.69		mg/kg	2.30	0.123	1	06/17/21 10:25	07/05/21 15:18	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21

Date Collected: 06/09/21 12:00

Client ID: FB-210609-1

Date Received: 06/09/21

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	06/16/21 05:38	07/01/21 16:09	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
 Client ID: FB-210609-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
 Date Received: 06/09/21
 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	06/16/21 05:38	07/01/21 17:15	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23

Date Collected: 06/09/21 08:10

Client ID: DUP-4

Date Received: 06/09/21

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	7.15		mg/kg	2.37	0.127	1	06/18/21 10:10	07/07/21 17:43	EPA 3050B	1,6010D	SV



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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): 21-22 Batch: WG1511378-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/16/21 05:38	06/23/21 16:01	1,6020B	BM

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): 01-20 Batch: WG1513004-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/17/21 10:25	07/05/21 12:53	1,6010D	SV

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): 23 Batch: WG1513009-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/18/21 10:10	07/07/21 15:30	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1511378-2								
Lead, Total	113		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1513004-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 23 Batch: WG1513009-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

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): 21-22 QC Batch ID: WG1511378-3 WG1511378-4 QC Sample: L2131451-01 Client ID: MS Sample												
Lead, Total	ND	510	531.4	104		532.1	104		75-125	0		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-3 QC Sample: L2131108-01 Client ID: PB28-16-SS01												
Lead, Total	7.88	48.5	46.4	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-3 QC Sample: L2129359-01 Client ID: MS Sample												
Lead, Total	14.0	54.3	61.9	88		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-4 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Lead, Total	7.88	7.47	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-4 QC Sample: L2129359-01 Client ID: DUP Sample						
Lead, Total	14.0	18.1	mg/kg	26	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-01
 Client ID: PB28-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:00
 Date Received: 06/09/21
 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	80.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-02

Date Collected: 06/09/21 08:15

Client ID: PB28-15-SS01

Date Received: 06/09/21

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	78.0		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:30
Date Received: 06/09/21
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	80.8		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-04

Date Collected: 06/09/21 08:55

Client ID: PB28-11-SS01

Date Received: 06/09/21

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	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05
Client ID: PB28-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:05
Date Received: 06/09/21
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	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-06

Date Collected: 06/09/21 09:25

Client ID: PB28-20-SS01

Date Received: 06/09/21

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	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Client ID: PB28-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
Date Received: 06/09/21
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	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08
Client ID: PB28-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:20
Date Received: 06/09/21
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	84.5		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-09

Date Collected: 06/09/21 10:40

Client ID: PB28-18-SS01

Date Received: 06/09/21

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	78.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-10

Date Collected: 06/09/21 10:55

Client ID: PB28-22-SS01

Date Received: 06/09/21

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	82.3		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11
Client ID: PB29-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
Date Received: 06/09/21
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	81.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-12

Date Collected: 06/09/21 11:25

Client ID: PB29-02-SS01

Date Received: 06/09/21

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	80.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13
 Client ID: PB29-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
 Date Received: 06/09/21
 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	82.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
Date Received: 06/09/21
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	81.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-15

Date Collected: 06/09/21 12:50

Client ID: PB29-05-SS01

Date Received: 06/09/21

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	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-16

Date Collected: 06/09/21 13:00

Client ID: PB29-06-SS01

Date Received: 06/09/21

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	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-17

Date Collected: 06/09/21 13:15

Client ID: PB29-07-SS01

Date Received: 06/09/21

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	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-18

Date Collected: 06/09/21 13:20

Client ID: PB29-08-SS01

Date Received: 06/09/21

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	77.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-19

Date Collected: 06/09/21 13:35

Client ID: PB29-09-SS01

Date Received: 06/09/21

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	84.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-20

Date Collected: 06/09/21 13:55

Client ID: PB29-10-SS01

Date Received: 06/09/21

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	82.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI



Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2131108-23

Date Collected: 06/09/21 08:10

Client ID: DUP-4

Date Received: 06/09/21

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	80.5		%	0.100	NA	1	-	06/11/21 09:01	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1510726-1 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Solids, Total	80.2	79.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 23 QC Batch ID: WG1510727-1 QC Sample: L2130982-05 Client ID: DUP Sample						
Solids, Total	56.8	52.2	%	8		20

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**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(*)
L2131108-01A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-01B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-01F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-02A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-02B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-02F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-03A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-03B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-03F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-04A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-04B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-04F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-05A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-05B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-05F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-06A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-06B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-06F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-07A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131108-07B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-07F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-08A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-08B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-08F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-09A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-09B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-09C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-09D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-09F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-10A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-10B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-10F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-11A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-11B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-11F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-12A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-12B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-12F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-13A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-13B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-13F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-14A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-14B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-14F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-15A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-15B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-15F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-16A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-16B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-16F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-17A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-17B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-17F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-18A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-18B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)

Project Name: PES REFINERY - AST CLOSURE**Lab Number:** L2131108**Project Number:** 200.00135.005**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-18F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-19A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-19B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-19F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-20A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-20B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-20F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-21A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-22A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Serial_No:07082119:02

Lab Number: L2131108

Report Date: 07/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-22G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-22H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-23A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-23B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-23F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)



Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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.

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

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-Terpeneol

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-Terpeneol; 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

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

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 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: 6/10/21

ALPHA Job #: L2131108

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	VOCs (8260)	SVOCs (8270)	Lead (6010B)											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																				
31108 -11	PB29-01-5501	6/9	1110	S	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"/>	<input type="checkbox"/>	6
-12	PB29-02-5501		1125		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"/>	<input type="checkbox"/>	
-13	PB29-03-5501		1145		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"/>	<input type="checkbox"/>	
-14	PB29-04-5501		1150		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"/>	<input type="checkbox"/>	
-15	PB29-05-5501		1250		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"/>	<input type="checkbox"/>	
-16	PB29-06-5501		1300		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"/>	<input type="checkbox"/>	
-17	PB29-07-5501		1315		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"/>	<input type="checkbox"/>	
-18	PB29-08-5501		1320		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"/>	<input type="checkbox"/>	
-19	PB29-09-5501		1335		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"/>	<input type="checkbox"/>	
-20	PB29-10-5501		1355		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"/>	<input type="checkbox"/>	

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/9 1506	<i>[Signature]</i>	6-9-21 1500
<i>[Signature]</i>	6-9-21 1800	<i>[Signature]</i>	6-9-21 800
<i>[Signature]</i>	6-9-21 2030	<i>[Signature]</i>	6/9 2200
<i>[Signature]</i>	7/6/21 0130	<i>[Signature]</i>	6/10/21 0130

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

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

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 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: 6/10/21

ALPHA Job #: 62131108

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

VOCs (8260)	SVOCs (8270)	Lead (6010B)	PA-8260 (SHORTLIST 1-5)	TOTAL LEAD	8011	PA-8270											
<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>															
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<input type="checkbox"/>	<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		
31108 -21	FB-210609-1	6/9	1200	W	TS
-22	FB-210609-2	6/9	1400	W	TS
-23	DUP-4	6/9	0810	S	TS
					TS
					TS
					TS
					TS
					TS
					TS
					TS

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/9/2021	Tom Cloutier	6/9-1500
Tom Cloutier	6-9-21 1800	AMT	6-9-21 1800
<i>[Signature]</i>	6/9/2021	<i>[Signature]</i>	6/9/2021
<i>[Signature]</i>	6/10/21 0130	<i>[Signature]</i>	6/10/21 0130

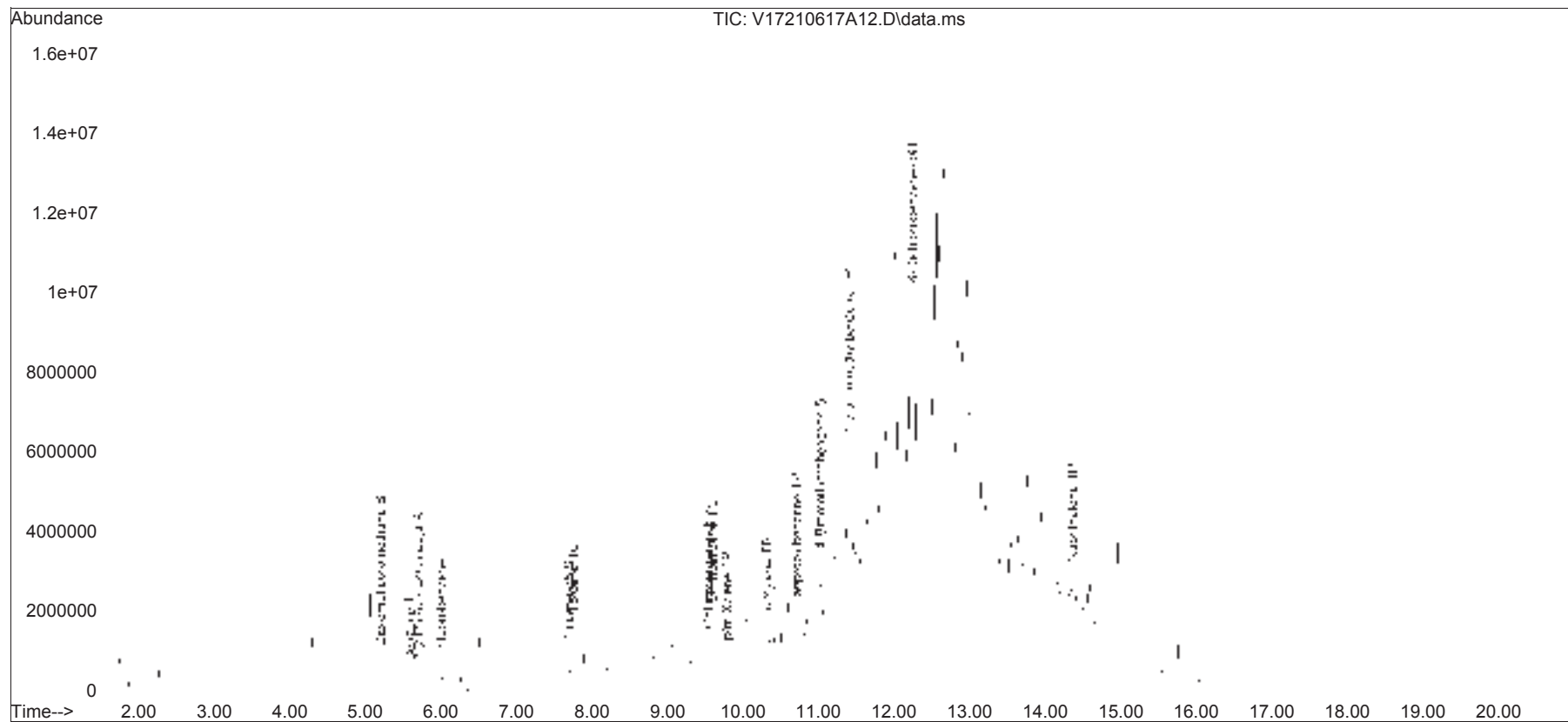
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210617A\
Data File : V17210617A12.D
Acq On : 17 Jun 2021 09:12 am
Operator : VOA117:MKS
Sample : L2131108-08,31,5.04,5,,B
Misc : WG1513560,ICAL18005
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 17 14:50:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\210617A\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list17A\V17210617A01.D•

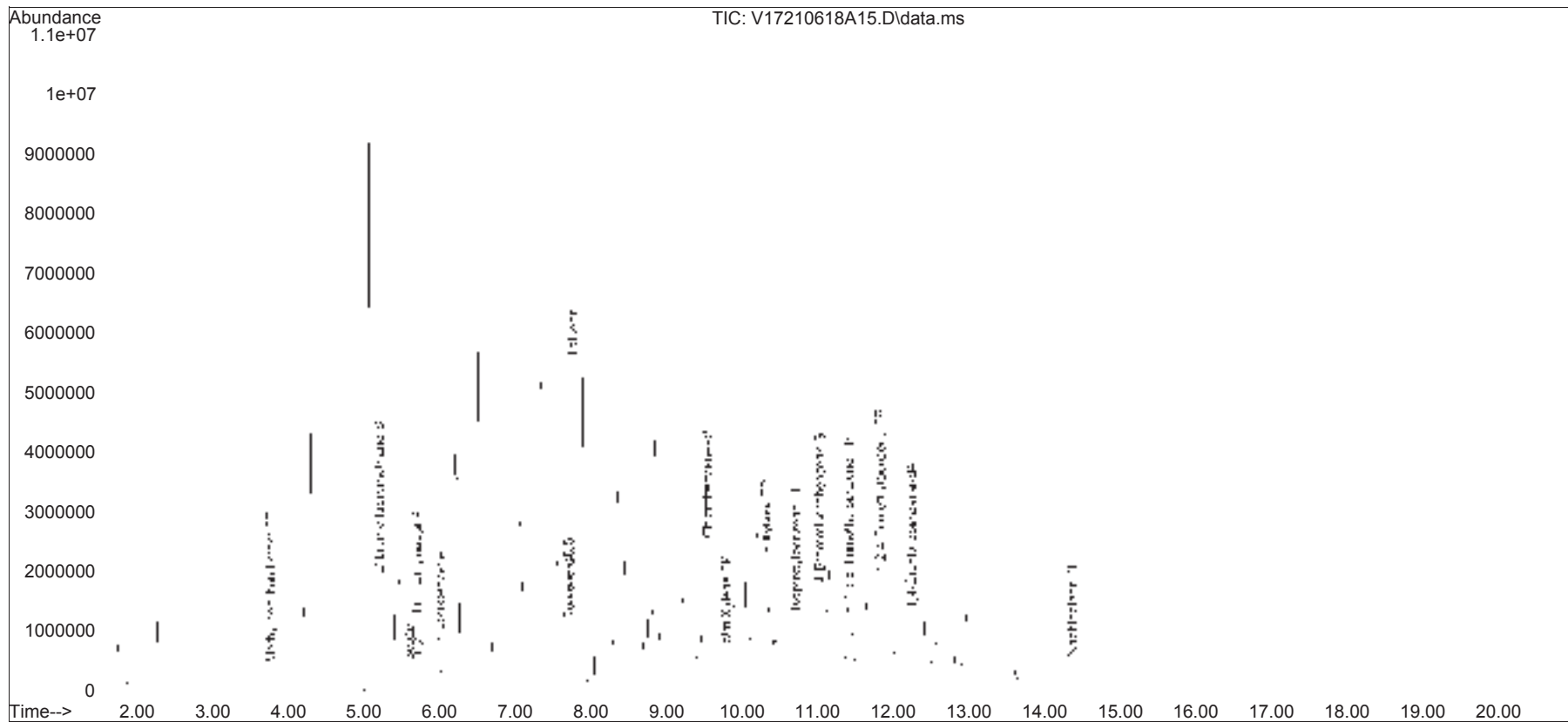


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210618A\
Data File : V17210618A15.D
Acq On : 18 Jun 2021 10:31 am
Operator : VOA117:JC
Sample : L2131108-09,31,3.63,5,,B
Misc : WG1513938,ICAL18005
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 18 14:04:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210618A\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V17210618A01.D•

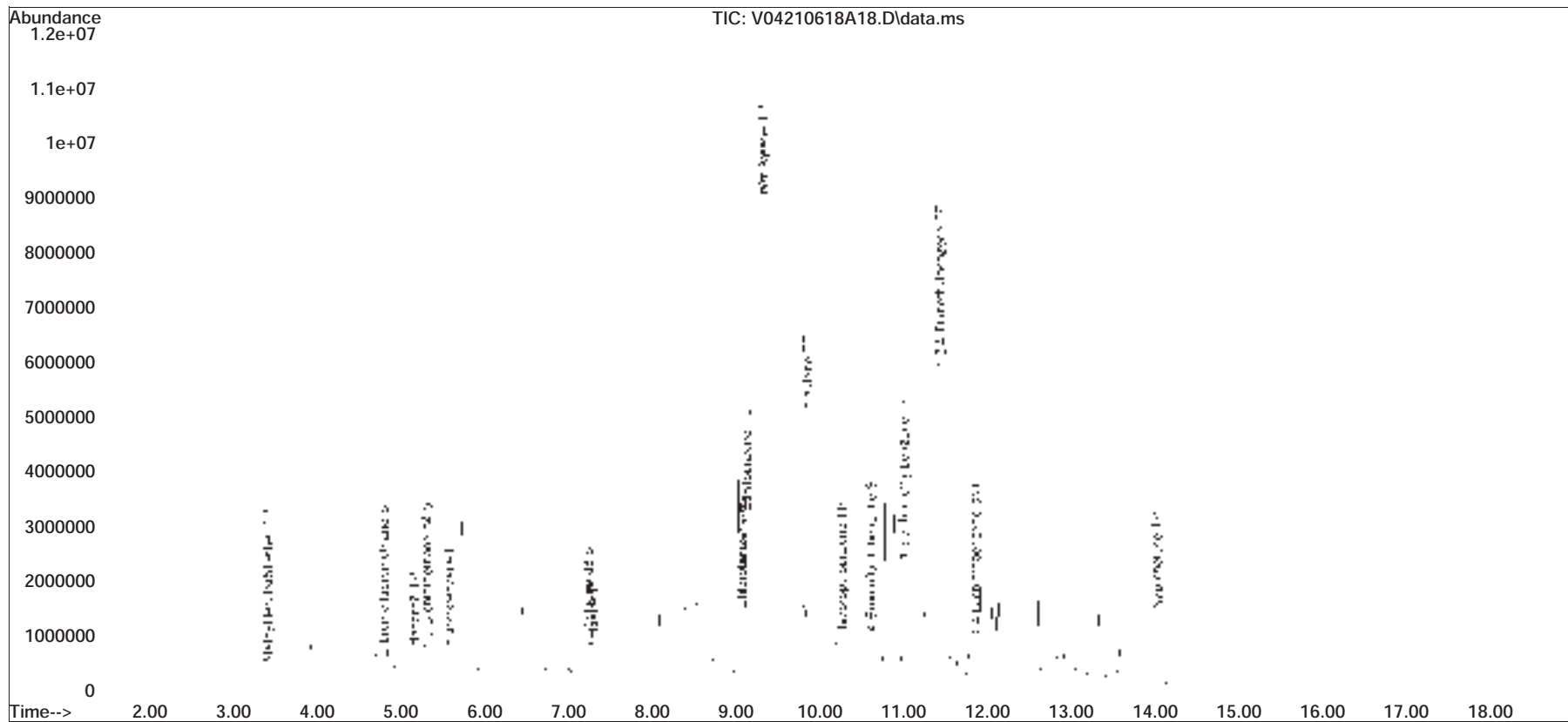


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A18.D
Acq On : 18 Jun 2021 2:55 pm
Operator : VOA104:NLK
Sample : L2131108-14,31H,6.89,5,0.100,,A
Misc : WG1513964,ICAL18000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 19 09:06:27 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

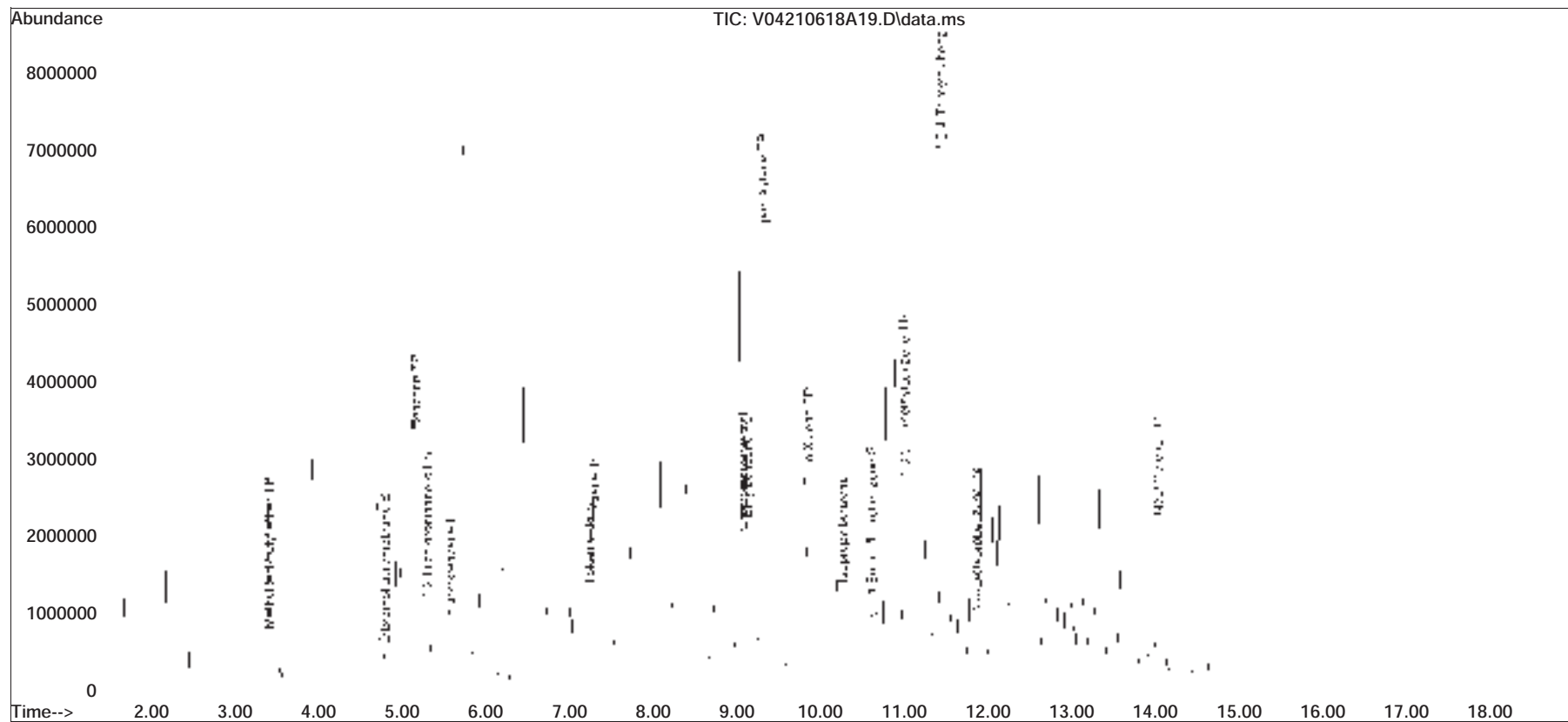


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A19.D
Acq On : 18 Jun 2021 3:20 pm
Operator : VOA104:NLK
Sample : L2131108-17,31H,6.29,5,0.100,,A
Misc : WG1513964,ICAL18000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 19 09:07:02 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

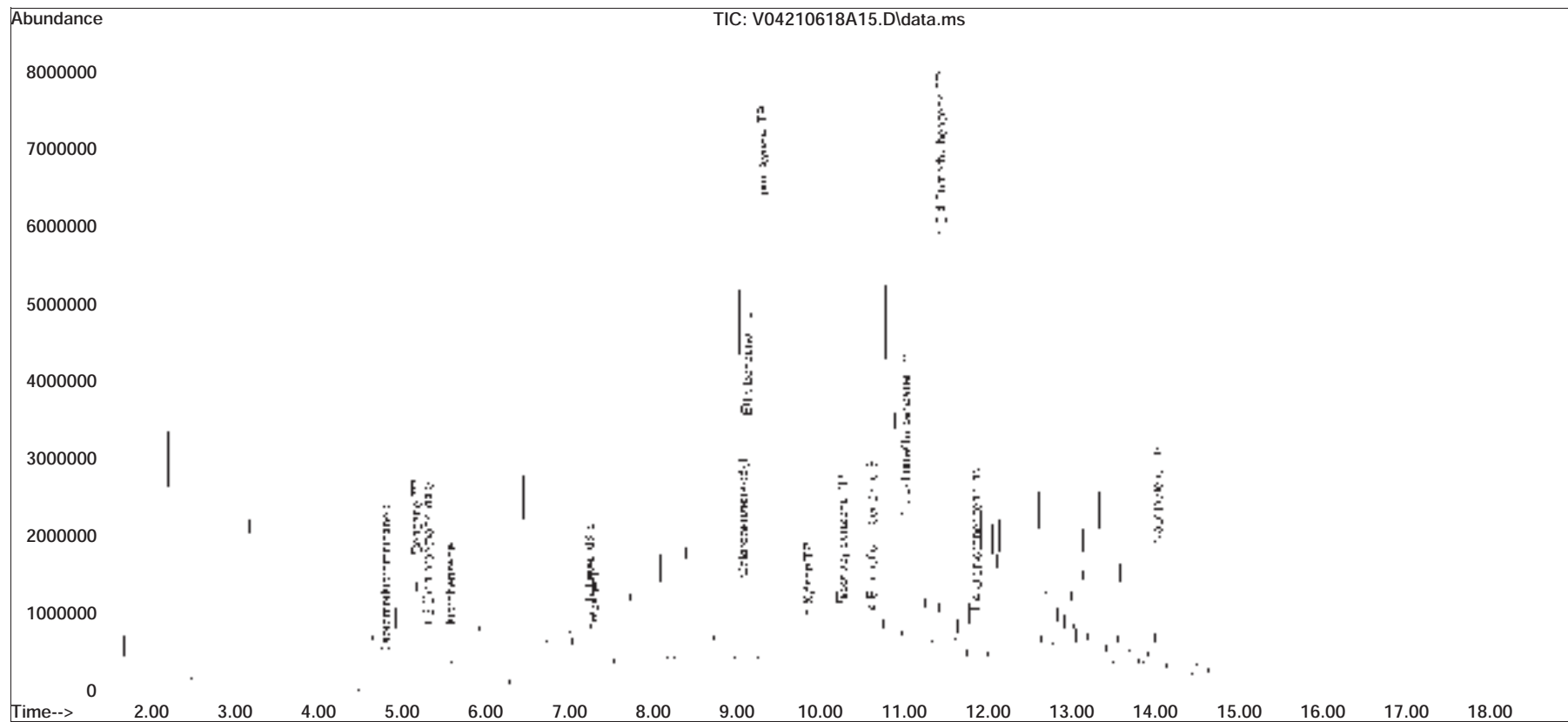


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A15.D
Acq On : 18 Jun 2021 1:40 pm
Operator : VOA104:NLK
Sample : L2131108-20D2,31H,6.26,5,0.025,,A
Misc : WG1513964,ICAL18000
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 19 09:03:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•





ANALYTICAL REPORT

Lab Number:	L2131453
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:	07/06/21

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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: L2131453
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-01	PB29-11-SS01	SOIL	PHILADELPHIA, PA	06/10/21 07:40	06/10/21
L2131453-02	PB29-12-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:00	06/10/21
L2131453-03	PB29-13-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:10	06/10/21
L2131453-04	PB29-16-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:15	06/10/21
L2131453-05	PB29-21-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:40	06/10/21
L2131453-06	PB29-20-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:55	06/10/21
L2131453-07	PB29-22-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:10	06/10/21
L2131453-08	PB29-23-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:20	06/10/21
L2131453-09	PB29-19-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:05	06/10/21
L2131453-10	PB29-25-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:35	06/10/21
L2131453-11	PB29-26-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:45	06/10/21
L2131453-12	PB29-27-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:00	06/10/21
L2131453-13	PB29-24-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:40	06/10/21
L2131453-14	PB29-14-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:35	06/10/21
L2131453-15	PB29-15-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:55	06/10/21
L2131453-16	PB29-18-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:05	06/10/21
L2131453-17	PB29-17-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:20	06/10/21
L2131453-18	PB33-01-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:40	06/10/21
L2131453-19	PB33-02-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:50	06/10/21
L2131453-20	PB33-03-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:05	06/10/21
L2131453-21	PB33-04-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:10	06/10/21
L2131453-22	DUP-5	SOIL	PHILADELPHIA, PA	06/10/21 07:50	06/10/21
L2131453-23	FB-210610-1	WATER	PHILADELPHIA, PA	06/10/21 12:00	06/10/21
L2131453-24	FB-210610-2	WATER	PHILADELPHIA, PA	06/10/21 14:00	06/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-25	TB	WATER	PHILADELPHIA, PA	06/10/21 00:00	06/10/21



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

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: L2131453
Report Date: 07/06/21

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

L2131453-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); 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.

L2131453-03: 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.

L2131453-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (159%) and 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.

L2131453-06: 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.

L2131453-06: 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.

L2131453-08D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (146%); 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.

L2131453-11: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (228%) and 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Case Narrative (continued)

interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-12 and -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.

L2131453-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (175%) and 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.

L2131453-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); 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.

L2131453-18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2131453-18D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (133%); 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.

L2131453-21D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (143%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-22: 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.

L2131453-25: The sample was collected in a pre-preserved vial; however, the pH of the sample was determined to be greater than two.

Semivolatile Organics by SIM

L2131453-05D: 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.

L2131453-07D and -16D: The sample has elevated detection limits due to the dilution required by the sample

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Case Narrative (continued)

matrix.

The WG1512751-2/-3 LCS/LCSD RPD, associated with L2131453-23 and -24, is above the acceptance criteria for naphthalene (41%).

Total Metals

The WG1514044-3 MS recoveries, performed on L2131453-01, are outside the acceptance criteria for lead (47%). A post digestion spike was performed and yielded unacceptable recoveries for lead (41%). 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 WG1514044-4 Laboratory Duplicate RPD for lead (28%), performed on L2131453-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

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: 07/06/21

ORGANICS



VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01
 Client ID: PB29-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 14:51
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92		mg/kg	0.12	0.012	1
Benzene	1.2		mg/kg	0.030	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.53		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	1.3		mg/kg	0.059	0.0083	1
p/m-Xylene	4.6		mg/kg	0.12	0.033	1
o-Xylene	1.8		mg/kg	0.059	0.017	1
Xylenes, Total	6.4		mg/kg	0.059	0.017	1
Isopropylbenzene	0.17		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.6		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02
 Client ID: PB29-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 15:18
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	12.		mg/kg	0.12	0.012	1
Benzene	6.6		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.10		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.75		mg/kg	0.062	0.0087	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.56		mg/kg	0.062	0.018	1
Xylenes, Total	1.8		mg/kg	0.062	0.018	1
Isopropylbenzene	0.30		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.64		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
 Client ID: PB29-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 16:59
 Analyst: NLK
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.020	J	mg/kg	0.16	0.016	1
Benzene	0.84		mg/kg	0.039	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.078	0.020	1
Toluene	0.14		mg/kg	0.078	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.039	0.023	1
Ethylbenzene	6.3		mg/kg	0.078	0.011	1
p/m-Xylene	22.		mg/kg	0.16	0.044	1
o-Xylene	5.8		mg/kg	0.078	0.023	1
Xylenes, Total	28.		mg/kg	0.078	0.023	1
Isopropylbenzene	0.78		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	4.0		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
 Client ID: PB29-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:15
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 17:02
 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	8.3		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.42		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	14.		mg/kg	0.062	0.0088	1
p/m-Xylene	3.0		mg/kg	0.12	0.035	1
o-Xylene	0.89		mg/kg	0.062	0.018	1
Xylenes, Total	3.9		mg/kg	0.062	0.018	1
Isopropylbenzene	2.2		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	159	Q	70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D2
 Client ID: PB29-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 21:13
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	350		mg/kg	5.5	1.6	50
Xylenes, Total	460		mg/kg	0.55	0.16	50
1,2,4-Trimethylbenzene	210		mg/kg	5.5	0.92	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
 Client ID: PB29-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 14:22
 Analyst: NLK
 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	1.1	0.11	10
Benzene	29.		mg/kg	0.28	0.092	10
1,2-Dichloroethane	ND		mg/kg	0.55	0.14	10
Toluene	150		mg/kg	0.55	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	100		mg/kg	0.55	0.078	10
p/m-Xylene	350	E	mg/kg	1.1	0.31	10
o-Xylene	110		mg/kg	0.55	0.16	10
Isopropylbenzene	9.9		mg/kg	0.55	0.060	10
1,3,5-Trimethylbenzene	79.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	220	E	mg/kg	1.1	0.18	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
 Client ID: PB29-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 16:11
 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	0.30	E	mg/kg	0.0018	0.00019	1
Benzene	0.41	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.0035		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.49	E	mg/kg	0.00093	0.00013	1
p/m-Xylene	0.30		mg/kg	0.0018	0.00052	1
o-Xylene	0.0084		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.31		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.057		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.30	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	1.1	E	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
 Client ID: PB29-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:21
 Analyst: MV
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.57		mg/kg	0.090	0.0090	1
Benzene	1.4		mg/kg	0.022	0.0075	1
1,2-Dichloroethane	ND		mg/kg	0.045	0.012	1
Toluene	0.088		mg/kg	0.045	0.024	1
1,2-Dibromoethane	ND		mg/kg	0.022	0.013	1
Ethylbenzene	1.1		mg/kg	0.045	0.0064	1
p/m-Xylene	0.87		mg/kg	0.090	0.025	1
o-Xylene	0.054		mg/kg	0.045	0.013	1
Xylenes, Total	0.92		mg/kg	0.045	0.013	1
Isopropylbenzene	0.11		mg/kg	0.045	0.0049	1
1,3,5-Trimethylbenzene	0.70		mg/kg	0.090	0.0087	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.090	0.015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D2
 Client ID: PB29-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 19:33
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.064	5
Benzene	25.		mg/kg	0.16	0.053	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.082	5
Toluene	3.6		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	72.		mg/kg	0.32	0.045	5
p/m-Xylene	270	E	mg/kg	0.64	0.18	5
o-Xylene	42.		mg/kg	0.32	0.093	5
Xylenes, Total	310		mg/kg	0.32	0.093	5
Isopropylbenzene	7.0		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	50.		mg/kg	0.64	0.061	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.64	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D
 Client ID: PB29-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 14:47
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	270		mg/kg	1.3	0.36	10
1,2,4-Trimethylbenzene	140		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D2
 Client ID: PB29-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 19:08
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	5
Benzene	30.		mg/kg	0.17	0.056	5
1,2-Dichloroethane	ND		mg/kg	0.33	0.086	5
Toluene	58.		mg/kg	0.33	0.18	5
1,2-Dibromoethane	ND		mg/kg	0.17	0.098	5
Ethylbenzene	110	E	mg/kg	0.33	0.047	5
p/m-Xylene	340	E	mg/kg	0.67	0.19	5
o-Xylene	100		mg/kg	0.33	0.097	5
Isopropylbenzene	7.4		mg/kg	0.33	0.036	5
1,3,5-Trimethylbenzene	70.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	190	E	mg/kg	0.67	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
 Client ID: PB29-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 15:12
 Analyst: NLK
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	110		mg/kg	0.67	0.094	10
p/m-Xylene	350		mg/kg	1.3	0.38	10
Xylenes, Total	450		mg/kg	0.33	0.097	10
1,2,4-Trimethylbenzene	190		mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09 D2
 Client ID: PB29-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 19:58
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.064	5
Benzene	23.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	22.		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	82.		mg/kg	0.32	0.045	5
p/m-Xylene	280	E	mg/kg	0.63	0.18	5
o-Xylene	73.		mg/kg	0.32	0.092	5
Isopropylbenzene	5.9		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	66.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	170	E	mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09 D
 Client ID: PB29-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 13:56
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	380		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	190		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
 Client ID: PB29-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:35
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 17:27
 Analyst: JC
 Percent Solids: 80%

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	0.016	1
Benzene	2.0		mg/kg	0.038	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.077	0.020	1
Toluene	0.49		mg/kg	0.077	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.038	0.023	1
Ethylbenzene	0.71		mg/kg	0.077	0.011	1
p/m-Xylene	0.69		mg/kg	0.15	0.043	1
o-Xylene	0.17		mg/kg	0.077	0.022	1
Xylenes, Total	0.86		mg/kg	0.077	0.022	1
Isopropylbenzene	5.2		mg/kg	0.077	0.0084	1
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.63		mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	166	Q	70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11
 Client ID: PB29-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:45
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 17:52
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.43		mg/kg	0.15	0.015	1
Benzene	11.		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.074	0.019	1
Toluene	1.5		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	1.6		mg/kg	0.074	0.010	1
p/m-Xylene	7.9		mg/kg	0.15	0.041	1
o-Xylene	2.8		mg/kg	0.074	0.021	1
Xylenes, Total	11.		mg/kg	0.074	0.021	1
Isopropylbenzene	5.1		mg/kg	0.074	0.0080	1
1,3,5-Trimethylbenzene	0.52		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.1		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	228	Q	70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12
 Client ID: PB29-27-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:18
 Analyst: JC
 Percent Solids: 81%

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	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.012	J	mg/kg	0.066	0.0094	1
p/m-Xylene	0.039	J	mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	0.039	J	mg/kg	0.066	0.019	1
Isopropylbenzene	1.8		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	0.68		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	1.7		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	175	Q	70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D2
 Client ID: PB29-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 08:56
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.3	0.13	10
Benzene	76.		mg/kg	0.32	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.65	0.17	10
Toluene	6.3		mg/kg	0.65	0.35	10
1,2-Dibromoethane	ND		mg/kg	0.32	0.19	10
Ethylbenzene	270	E	mg/kg	0.65	0.092	10
p/m-Xylene	690	E	mg/kg	1.3	0.36	10
o-Xylene	200		mg/kg	0.65	0.19	10
Isopropylbenzene	18.		mg/kg	0.65	0.071	10
1,3,5-Trimethylbenzene	150		mg/kg	1.3	0.12	10
1,2,4-Trimethylbenzene	430	E	mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D
 Client ID: PB29-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 21:38
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	220		mg/kg	3.2	0.46	50
p/m-Xylene	630		mg/kg	6.5	1.8	50
Xylenes, Total	830		mg/kg	0.65	0.19	50
1,2,4-Trimethylbenzene	380		mg/kg	6.5	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
 Client ID: PB29-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:35
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 14:27
 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	0.0023	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	0.00063	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	0.00065	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	94		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
 Client ID: PB29-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:55
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 14:53
 Analyst: NLK
 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	0.0018	0.00018	1
Benzene	0.00029	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	0.00025	J	mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	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	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.00022	J	mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00033	J	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16
 Client ID: PB29-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 15:19
 Analyst: NLK
 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	0.00094		mg/kg	0.00055	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	0.00055	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	0.00060	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	95		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
 Client ID: PB29-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:20
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 15:43
 Analyst: NLK
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.032	J	mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.026	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.025	J	mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	169	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18 D
 Client ID: PB33-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:43
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.093	J	mg/kg	0.24	0.024	2
Benzene	1.2		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	ND		mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.17		mg/kg	0.12	0.017	2
p/m-Xylene	0.20	J	mg/kg	0.24	0.068	2
o-Xylene	ND		mg/kg	0.12	0.036	2
Xylenes, Total	0.20	J	mg/kg	0.12	0.036	2
Isopropylbenzene	2.6		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.24	0.041	2
Naphthalene	0.34	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	133	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	90		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19 D2
 Client ID: PB33-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:50
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 09:47
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	6.6		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	0.53		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	29.		mg/kg	0.12	0.017	2
p/m-Xylene	70.		mg/kg	0.25	0.069	2
o-Xylene	1.7		mg/kg	0.12	0.036	2
Xylenes, Total	72.		mg/kg	0.12	0.036	2
Isopropylbenzene	2.7		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	16.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	45.	E	mg/kg	0.25	0.041	2
Naphthalene	7.0		mg/kg	0.49	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19 D
 Client ID: PB33-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:50
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 20:48
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	51.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20
 Client ID: PB33-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 16:37
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.14	0.014	1
Benzene	0.038		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.22		mg/kg	0.069	0.0097	1
p/m-Xylene	0.83		mg/kg	0.14	0.039	1
o-Xylene	0.29		mg/kg	0.069	0.020	1
Xylenes, Total	1.1		mg/kg	0.069	0.020	1
Isopropylbenzene	1.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	2.2		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	5.7		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21 D2
 Client ID: PB33-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 09:22
 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	0.57	0.057	5
Benzene	12.		mg/kg	0.14	0.047	5
1,2-Dichloroethane	ND		mg/kg	0.28	0.073	5
Toluene	0.52		mg/kg	0.28	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.083	5
Ethylbenzene	85.	E	mg/kg	0.28	0.040	5
p/m-Xylene	280	E	mg/kg	0.57	0.16	5
o-Xylene	19.		mg/kg	0.28	0.083	5
Isopropylbenzene	13.		mg/kg	0.28	0.031	5
1,3,5-Trimethylbenzene	43.		mg/kg	0.57	0.055	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.57	0.095	5
Naphthalene	8.6		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	143	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21 D
 Client ID: PB33-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 20:23
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	91.		mg/kg	0.57	0.080	10
p/m-Xylene	310		mg/kg	1.1	0.32	10
Xylenes, Total	330		mg/kg	0.28	0.083	10
1,2,4-Trimethylbenzene	130		mg/kg	1.1	0.19	10

Ethylbenzene	91.		mg/kg	0.57	0.080	10
p/m-Xylene	310		mg/kg	1.1	0.32	10
Xylenes, Total	330		mg/kg	0.28	0.083	10
1,2,4-Trimethylbenzene	130		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
 Client ID: DUP-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/19/21 15:45
 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	1.4	E	mg/kg	0.0018	0.00018	1
Benzene	2.2	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	0.12		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.32	E	mg/kg	0.00092	0.00013	1
p/m-Xylene	0.42		mg/kg	0.0018	0.00051	1
o-Xylene	0.25		mg/kg	0.00092	0.00027	1
Xylenes, Total	0.67		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.020		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.27		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
 Client ID: DUP-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:47
 Analyst: MV
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.0		mg/kg	0.11	0.011	1
Benzene	3.6		mg/kg	0.027	0.0090	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.16		mg/kg	0.054	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.52		mg/kg	0.054	0.0077	1
p/m-Xylene	0.59		mg/kg	0.11	0.030	1
o-Xylene	0.35		mg/kg	0.054	0.016	1
Xylenes, Total	0.94		mg/kg	0.054	0.016	1
Isopropylbenzene	0.028	J	mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.44		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
 Client ID: FB-210610-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/17/21 15:22
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/17/21 12:32

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: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
 Client ID: FB-210610-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 11:19
 Analyst: MKS

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	111		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
 Client ID: FB-210610-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/17/21 15:28
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/17/21 12:32

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: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
 Client ID: FB-210610-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 11:45
 Analyst: MKS

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	110		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-25
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 00:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/18/21 12:10
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-25 Batch: WG1513956-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,07-13,18-21 Batch: WG1514499-10					
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	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,19,21 Batch: WG1514499-15					
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	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:30
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,07-09 Batch: WG1514499-5					
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	106		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/19/21 08:22
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,14-16,22 Batch: WG1514511-5					
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	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,17 Batch: WG1514517-5					
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	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	102		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/20/21 13:08
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,22 Batch: WG1514630-5					
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	90		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-25 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
1,2-Dibromoethane	94		96		70-130	2		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20
Naphthalene	92		94		70-130	2		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,19,21 Batch: WG1514499-13 WG1514499-14									
Methyl tert butyl ether	101		103		66-130		2		30
Benzene	108		104		70-130		4		30
1,2-Dichloroethane	104		104		70-130		0		30
Toluene	108		104		70-130		4		30
1,2-Dibromoethane	103		106		70-130		3		30
Ethylbenzene	111		107		70-130		4		30
p/m-Xylene	108		104		70-130		4		30
o-Xylene	103		101		70-130		2		30
Isopropylbenzene	112		109		70-130		3		30
1,3,5-Trimethylbenzene	108		106		70-130		2		30
1,2,4-Trimethylbenzene	107		106		70-130		1		30
Naphthalene	88		94		70-130		7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		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: L2131453
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,07-09 Batch: WG1514499-3 WG1514499-4								
Methyl tert butyl ether	102		99		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	100		101		70-130	1		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	105		106		70-130	1		30
Ethylbenzene	111		111		70-130	0		30
p/m-Xylene	108		108		70-130	0		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	112		113		70-130	1		30
1,3,5-Trimethylbenzene	108		109		70-130	1		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30
Naphthalene	91		94		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	97		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,07-13,18-21 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,14-16,22 Batch: WG1514511-3 WG1514511-4								
Methyl tert butyl ether	96		94		66-130	2		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	92		90		70-130	2		30
Toluene	84		84		70-130	0		30
1,2-Dibromoethane	89		88		70-130	1		30
Ethylbenzene	85		86		70-130	1		30
p/m-Xylene	86		87		70-130	1		30
o-Xylene	87		89		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	87		86		70-130	1		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		91		70-130
Toluene-d8	93		94		70-130
4-Bromofluorobenzene	101		97		70-130
Dibromofluoromethane	103		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,17 Batch: WG1514517-3 WG1514517-4								
Methyl tert butyl ether	95		95		66-130	0		30
Benzene	85		83		70-130	2		30
1,2-Dichloroethane	89		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		95		70-130	1		30
Ethylbenzene	102		101		70-130	1		30
p/m-Xylene	93		91		70-130	2		30
o-Xylene	93		92		70-130	1		30
Isopropylbenzene	105		100		70-130	5		30
1,3,5-Trimethylbenzene	107		102		70-130	5		30
1,2,4-Trimethylbenzene	107		102		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	112		113		70-130
4-Bromofluorobenzene	116		114		70-130
Dibromofluoromethane	100		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,22 Batch: WG1514630-3 WG1514630-4								
Methyl tert butyl ether	109		106		66-130	3		30
Benzene	115		110		70-130	4		30
1,2-Dichloroethane	106		102		70-130	4		30
Toluene	101		97		70-130	4		30
1,2-Dibromoethane	100		99		70-130	1		30
Ethylbenzene	104		100		70-130	4		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	104		102		70-130	2		30
Isopropylbenzene	106		100		70-130	6		30
1,3,5-Trimethylbenzene	105		99		70-130	6		30
1,2,4-Trimethylbenzene	106		99		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		105		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01 D
 Client ID: PB29-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 16:46
 Analyst: RP
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.6		mg/kg	0.040	0.0073	5
Fluorene	0.040		mg/kg	0.040	0.0048	5
Phenanthrene	0.073		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.044		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.031	J	mg/kg	0.040	0.0038	5
Chrysene	0.018	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.022	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.018	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.016	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02
 Client ID: PB29-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 17:28
 Analyst: RP
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0011	J	mg/kg	0.0081	0.00068	1
Anthracene	ND		mg/kg	0.0081	0.00064	1
Pyrene	0.0010	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.00085	J	mg/kg	0.0081	0.00077	1
Chrysene	ND		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.00089	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
 Client ID: PB29-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 17:44
 Analyst: RP
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0084	0.0015	1
Fluorene	0.0013	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0018	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.00080	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	ND		mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	70		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
 Client ID: PB29-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:15
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 18:00
 Analyst: RP
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 09:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.27		mg/kg	0.0080	0.0014	1
Fluorene	0.0024	J	mg/kg	0.0080	0.00096	1
Phenanthrene	0.0032	J	mg/kg	0.0080	0.00068	1
Anthracene	0.00088	J	mg/kg	0.0080	0.00064	1
Pyrene	0.0020	J	mg/kg	0.0080	0.00056	1
Benzo(a)anthracene	0.0013	J	mg/kg	0.0080	0.00076	1
Chrysene	0.00072	J	mg/kg	0.0080	0.00060	1
Benzo(b)fluoranthene	ND		mg/kg	0.0080	0.00076	1
Benzo(a)pyrene	ND		mg/kg	0.0080	0.00096	1
Benzo(ghi)perylene	ND		mg/kg	0.0080	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	137	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	68		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
 Client ID: PB29-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 17:03
 Analyst: RP
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	13.		mg/kg	0.16	0.028	20
Fluorene	0.064	J	mg/kg	0.16	0.019	20
Phenanthrene	0.098	J	mg/kg	0.16	0.014	20
Anthracene	0.016	J	mg/kg	0.16	0.013	20
Pyrene	0.044	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.046	J	mg/kg	0.16	0.015	20
Chrysene	ND		mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	ND		mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	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: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06 D
 Client ID: PB29-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 17:35
 Analyst: RP
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.90		mg/kg	0.015	0.0027	2
Fluorene	0.0084	J	mg/kg	0.015	0.0018	2
Phenanthrene	0.018		mg/kg	0.015	0.0013	2
Anthracene	0.0038	J	mg/kg	0.015	0.0012	2
Pyrene	0.011	J	mg/kg	0.015	0.0011	2
Benzo(a)anthracene	0.011	J	mg/kg	0.015	0.0014	2
Chrysene	0.0056	J	mg/kg	0.015	0.0011	2
Benzo(b)fluoranthene	0.011	J	mg/kg	0.015	0.0014	2
Benzo(a)pyrene	0.010	J	mg/kg	0.015	0.0018	2
Benzo(ghi)perylene	0.013	J	mg/kg	0.015	0.0013	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	59		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D
 Client ID: PB29-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/28/21 14:28
 Analyst: JJW
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.6		mg/kg	0.041	0.0074	5
Fluorene	ND		mg/kg	0.041	0.0049	5
Phenanthrene	0.011	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0069	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
 Client ID: PB29-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 18:08
 Analyst: RP
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.3		mg/kg	0.017	0.0030	2
Fluorene	0.0056	J	mg/kg	0.017	0.0020	2
Phenanthrene	0.0074	J	mg/kg	0.017	0.0014	2
Anthracene	0.0014	J	mg/kg	0.017	0.0013	2
Pyrene	0.0030	J	mg/kg	0.017	0.0012	2
Benzo(a)anthracene	0.0037	J	mg/kg	0.017	0.0016	2
Chrysene	ND		mg/kg	0.017	0.0012	2
Benzo(b)fluoranthene	ND		mg/kg	0.017	0.0016	2
Benzo(a)pyrene	ND		mg/kg	0.017	0.0020	2
Benzo(ghi)perylene	ND		mg/kg	0.017	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09
 Client ID: PB29-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 18:24
 Analyst: RP
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.38		mg/kg	0.0084	0.0015	1
Fluorene	0.0021	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0037	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.0012	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.0016	J	mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	40		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
 Client ID: PB29-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:35
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 19:38
 Analyst: RP
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.21		mg/kg	0.0082	0.0015	1
Fluorene	0.014		mg/kg	0.0082	0.00098	1
Phenanthrene	0.020		mg/kg	0.0082	0.00069	1
Anthracene	0.0043	J	mg/kg	0.0082	0.00065	1
Pyrene	0.014		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0082		mg/kg	0.0082	0.00077	1
Chrysene	0.0070	J	mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	0.0095		mg/kg	0.0082	0.00077	1
Benzo(a)pyrene	0.0071	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0072	J	mg/kg	0.0082	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	144	Q	23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11
 Client ID: PB29-26-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:45
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 19:54
 Analyst: RP
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.12		mg/kg	0.0083	0.0015	1
Fluorene	0.088		mg/kg	0.0083	0.0010	1
Phenanthrene	0.18		mg/kg	0.0083	0.00071	1
Anthracene	0.044		mg/kg	0.0083	0.00066	1
Pyrene	0.028		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.0092		mg/kg	0.0083	0.00079	1
Chrysene	0.0079	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	0.0064	J	mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	0.0043	J	mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	0.0020	J	mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	167	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12
 Client ID: PB29-27-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 20:10
 Analyst: RP
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0082	0.0015	1
Fluorene	0.0020	J	mg/kg	0.0082	0.00098	1
Phenanthrene	0.0022	J	mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.00082	J	mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	152	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	89		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D
 Client ID: PB29-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/25/21 18:41
 Analyst: RP
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.0		mg/kg	0.016	0.0030	2
Fluorene	0.0074	J	mg/kg	0.016	0.0020	2
Phenanthrene	0.011	J	mg/kg	0.016	0.0014	2
Anthracene	0.0022	J	mg/kg	0.016	0.0013	2
Pyrene	0.0056	J	mg/kg	0.016	0.0012	2
Benzo(a)anthracene	0.0077	J	mg/kg	0.016	0.0016	2
Chrysene	0.0052	J	mg/kg	0.016	0.0012	2
Benzo(b)fluoranthene	0.0074	J	mg/kg	0.016	0.0016	2
Benzo(a)pyrene	0.0049	J	mg/kg	0.016	0.0020	2
Benzo(ghi)perylene	0.0040	J	mg/kg	0.016	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
 Client ID: PB29-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:35
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 20:43
 Analyst: RP
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.011		mg/kg	0.0079	0.0014	1
Fluorene	0.016		mg/kg	0.0079	0.00095	1
Phenanthrene	0.19		mg/kg	0.0079	0.00068	1
Anthracene	0.043		mg/kg	0.0079	0.00064	1
Pyrene	0.22		mg/kg	0.0079	0.00056	1
Benzo(a)anthracene	0.17		mg/kg	0.0079	0.00075	1
Chrysene	0.14		mg/kg	0.0079	0.00060	1
Benzo(b)fluoranthene	0.25		mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.20		mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.12		mg/kg	0.0079	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	147	Q	23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
 Client ID: PB29-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:55
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 20:59
 Analyst: RP
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0062	J	mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0043	J	mg/kg	0.0081	0.00068	1
Anthracene	0.0013	J	mg/kg	0.0081	0.00064	1
Pyrene	0.0079	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.012		mg/kg	0.0081	0.00077	1
Chrysene	0.0095		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.023		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.019		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.015		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	142	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	79		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16 D
 Client ID: PB29-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:05
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 21:15
 Analyst: RP
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012	J	mg/kg	0.038	0.0068	5
Fluorene	ND		mg/kg	0.038	0.0045	5
Phenanthrene	0.044		mg/kg	0.038	0.0032	5
Anthracene	0.017	J	mg/kg	0.038	0.0030	5
Pyrene	0.076		mg/kg	0.038	0.0026	5
Benzo(a)anthracene	0.076		mg/kg	0.038	0.0036	5
Chrysene	0.080		mg/kg	0.038	0.0028	5
Benzo(b)fluoranthene	0.28		mg/kg	0.038	0.0036	5
Benzo(a)pyrene	0.20		mg/kg	0.038	0.0045	5
Benzo(ghi)perylene	0.22		mg/kg	0.038	0.0032	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
 Client ID: PB29-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:20
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 21:32
 Analyst: RP
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0027	J	mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.0064	J	mg/kg	0.0084	0.00072	1
Anthracene	0.0026	J	mg/kg	0.0084	0.00068	1
Pyrene	0.013		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.029		mg/kg	0.0084	0.00080	1
Chrysene	0.019		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.061		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.050		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.041		mg/kg	0.0084	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	146	Q	23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	83		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
 Client ID: DUP-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/24/21 21:48
 Analyst: RP
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.44		mg/kg	0.0075	0.0014	1
Fluorene	0.0056	J	mg/kg	0.0075	0.00090	1
Phenanthrene	0.011		mg/kg	0.0075	0.00064	1
Anthracene	0.0020	J	mg/kg	0.0075	0.00060	1
Pyrene	0.0055	J	mg/kg	0.0075	0.00053	1
Benzo(a)anthracene	0.0036	J	mg/kg	0.0075	0.00072	1
Chrysene	0.0029	J	mg/kg	0.0075	0.00056	1
Benzo(b)fluoranthene	0.0040	J	mg/kg	0.0075	0.00072	1
Benzo(a)pyrene	0.0029	J	mg/kg	0.0075	0.00090	1
Benzo(ghi)perylene	0.0035	J	mg/kg	0.0075	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	149	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
 Client ID: FB-210610-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/18/21 18:18
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 06/17/21 08:15

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	69		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	87		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
 Client ID: FB-210610-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
 Date Received: 06/10/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 06/18/21 18:38
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 06/17/21 08:15

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	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	89		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 06/17/21 11:45
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 06/16/21 09:34

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23-24 Batch: WG1512751-1					
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
2-Fluorophenol	36		21-120
Phenol-d6	28		10-120
Nitrobenzene-d5	43		23-120
2-Fluorobiphenyl	42		15-120
2,4,6-Tribromophenol	57		10-120
4-Terphenyl-d14	49		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 16:39
Analyst: RP

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-17,22 Batch: WG1515702-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00052
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.00082	J	mg/kg	0.0066	0.00062
Chrysene	0.00079	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0017	J	mg/kg	0.0066	0.00062
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.0015	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	100		25-120
Phenol-d6	106		10-120
Nitrobenzene-d5	128	Q	23-120
2-Fluorobiphenyl	77		30-120
2,4,6-Tribromophenol	88		10-136
4-Terphenyl-d14	93		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23-24 Batch: WG1512751-2 WG1512751-3								
Naphthalene	41		62		40-140	41	Q	40
Fluorene	48		69		40-140	36		40
Phenanthrene	48		64		40-140	29		40
Anthracene	52		69		40-140	28		40
Pyrene	50		66		26-127	28		40
Benzo(a)anthracene	50		64		40-140	25		40
Chrysene	54		75		40-140	33		40
Benzo(b)fluoranthene	53		68		40-140	25		40
Benzo(a)pyrene	54		71		40-140	27		40
Benzo(ghi)perylene	52		68		40-140	27		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	35		53		21-120
Phenol-d6	31		44		10-120
Nitrobenzene-d5	40		62		23-120
2-Fluorobiphenyl	42		60		15-120
2,4,6-Tribromophenol	66		95		10-120
4-Terphenyl-d14	51		66		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-17,22 Batch: WG1515702-2 WG1515702-3								
Naphthalene	51		53		40-140	4		50
Fluorene	52		54		40-140	4		50
Phenanthrene	49		51		40-140	4		50
Anthracene	52		55		40-140	6		50
Pyrene	52		57		35-142	9		50
Benzo(a)anthracene	51		56		40-140	9		50
Chrysene	46		50		40-140	8		50
Benzo(b)fluoranthene	53		57		40-140	7		50
Benzo(a)pyrene	55		57		40-140	4		50
Benzo(ghi)perylene	50		51		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57		60		25-120
Phenol-d6	55		58		10-120
Nitrobenzene-d5	56		58		23-120
2-Fluorobiphenyl	49		50		30-120
2,4,6-Tribromophenol	48		51		10-136
4-Terphenyl-d14	46		49		18-120



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01

Date Collected: 06/10/21 07:40

Client ID: PB29-11-SS01

Date Received: 06/10/21

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	5.15		mg/kg	2.35	0.126	1	06/18/21 21:00	06/24/21 22:41	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02

Date Collected: 06/10/21 08:00

Client ID: PB29-12-SS01

Date Received: 06/10/21

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	7.89		mg/kg	2.40	0.128	1	06/18/21 21:00	06/24/21 23:00	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03

Date Collected: 06/10/21 08:10

Client ID: PB29-13-SS01

Date Received: 06/10/21

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	9.68		mg/kg	2.45	0.131	1	06/18/21 21:00	06/24/21 23:04	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-04

Date Collected: 06/10/21 08:15

Client ID: PB29-16-SS01

Date Received: 06/10/21

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	6.72		mg/kg	2.34	0.126	1	06/18/21 21:00	06/24/21 23:09	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05

Date Collected: 06/10/21 08:40

Client ID: PB29-21-SS01

Date Received: 06/10/21

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	11.9		mg/kg	2.29	0.122	1	06/18/21 21:00	06/24/21 23:13	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06

Date Collected: 06/10/21 08:55

Client ID: PB29-20-SS01

Date Received: 06/10/21

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	37.3		mg/kg	2.18	0.117	1	06/18/21 21:00	06/28/21 18:50	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07

Date Collected: 06/10/21 09:10

Client ID: PB29-22-SS01

Date Received: 06/10/21

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	10.7		mg/kg	2.33	0.125	1	06/18/21 21:00	06/28/21 18:55	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08

Date Collected: 06/10/21 09:20

Client ID: PB29-23-SS01

Date Received: 06/10/21

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	7.46		mg/kg	2.53	0.136	1	06/18/21 21:00	06/28/21 19:00	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09

Date Collected: 06/10/21 10:05

Client ID: PB29-19-SS01

Date Received: 06/10/21

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	10.8		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:05	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10

Date Collected: 06/10/21 10:35

Client ID: PB29-25-SS01

Date Received: 06/10/21

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	63.6		mg/kg	2.42	0.130	1	06/18/21 21:00	06/28/21 19:10	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11

Date Collected: 06/10/21 10:45

Client ID: PB29-26-SS01

Date Received: 06/10/21

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	6.93		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:15	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12

Date Collected: 06/10/21 11:00

Client ID: PB29-27-SS01

Date Received: 06/10/21

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	7.15		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:20	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13
 Client ID: PB29-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
 Date Received: 06/10/21
 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	18.0		mg/kg	2.39	0.128	1	06/18/21 21:00	06/28/21 19:25	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14

Date Collected: 06/10/21 12:35

Client ID: PB29-14-SS01

Date Received: 06/10/21

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	84.5		mg/kg	2.38	0.128	1	06/18/21 21:00	06/28/21 19:29	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15

Date Collected: 06/10/21 12:55

Client ID: PB29-15-SS01

Date Received: 06/10/21

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	2110		mg/kg	2.32	0.124	1	06/18/21 21:00	07/02/21 15:33	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16
 Client ID: PB29-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:05
 Date Received: 06/10/21
 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	96.2		mg/kg	2.28	0.122	1	06/18/21 21:00	07/02/21 15:48	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
 Client ID: PB29-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:20
 Date Received: 06/10/21
 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	105		mg/kg	2.49	0.133	1	06/18/21 21:00	07/02/21 15:53	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18

Date Collected: 06/10/21 13:40

Client ID: PB33-01-SS01

Date Received: 06/10/21

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	5.89		mg/kg	2.42	0.130	1	06/18/21 21:00	07/02/21 15:58	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19

Date Collected: 06/10/21 13:50

Client ID: PB33-02-SS01

Date Received: 06/10/21

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	9.41		mg/kg	2.44	0.131	1	06/18/21 21:00	07/02/21 16:02	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20

Date Collected: 06/10/21 14:05

Client ID: PB33-03-SS01

Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.57		mg/kg	2.56	0.137	1	06/18/21 21:00	07/02/21 16:07	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21

Date Collected: 06/10/21 14:10

Client ID: PB33-04-SS01

Date Received: 06/10/21

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	13.0		mg/kg	2.30	0.123	1	06/19/21 09:25	06/22/21 13:36	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
 Client ID: DUP-5
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
 Date Received: 06/10/21
 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	8.85		mg/kg	2.23	0.119	1	06/19/21 09:25	06/22/21 13:40	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23

Date Collected: 06/10/21 12:00

Client ID: FB-210610-1

Date Received: 06/10/21

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	06/18/21 07:27	06/18/21 23:03	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24

Date Collected: 06/10/21 14:00

Client ID: FB-210610-2

Date Received: 06/10/21

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	06/18/21 07:27	06/18/21 23:08	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

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): 23-24 Batch: WG1512604-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 18:30	1,6020B	CD

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): 01-20 Batch: WG1514044-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/18/21 21:00	06/24/21 22:23	1,6010D	BV

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): 21-22 Batch: WG1514081-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/19/21 09:25	06/22/21 11:57	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512604-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514044-2 SRM Lot Number: D109-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1514081-2 SRM Lot Number: D109-540								
Lead, Total	88		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

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): 23-24 QC Batch ID: WG1512604-3 QC Sample: L2129208-01 Client ID: MS Sample												
Lead, Total	1.145	510	510.7	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-3 QC Sample: L2131453-01 Client ID: PB29-11-SS01												
Lead, Total	5.15	47.2	27.4	47	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-3 QC Sample: L2131446-01 Client ID: MS Sample												
Lead, Total	35.5	47.3	97.3	131	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-4 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Lead, Total	5.15	6.83	mg/kg	28	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-4 QC Sample: L2131446-01 Client ID: DUP Sample						
Lead, Total	35.5	78.4	mg/kg	75	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-01

Date Collected: 06/10/21 07:40

Client ID: PB29-11-SS01

Date Received: 06/10/21

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	81.4		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-02

Date Collected: 06/10/21 08:00

Client ID: PB29-12-SS01

Date Received: 06/10/21

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	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
 Client ID: PB29-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
 Date Received: 06/10/21
 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	78.1		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-04

Date Collected: 06/10/21 08:15

Client ID: PB29-16-SS01

Date Received: 06/10/21

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	-	06/12/21 12:28	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-05

Date Collected: 06/10/21 08:40

Client ID: PB29-21-SS01

Date Received: 06/10/21

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	83.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06

Date Collected: 06/10/21 08:55

Client ID: PB29-20-SS01

Date Received: 06/10/21

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	87.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07

Date Collected: 06/10/21 09:10

Client ID: PB29-22-SS01

Date Received: 06/10/21

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	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-08

Date Collected: 06/10/21 09:20

Client ID: PB29-23-SS01

Date Received: 06/10/21

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	78.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09
 Client ID: PB29-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
 Date Received: 06/10/21
 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	79.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
 Client ID: PB29-25-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:35
 Date Received: 06/10/21
 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	80.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11
Client ID: PB29-26-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:45
Date Received: 06/10/21
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	79.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12

Date Collected: 06/10/21 11:00

Client ID: PB29-27-SS01

Date Received: 06/10/21

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	80.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13
 Client ID: PB29-24-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
 Date Received: 06/10/21
 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	79.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-14

Date Collected: 06/10/21 12:35

Client ID: PB29-14-SS01

Date Received: 06/10/21

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	81.6		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-15

Date Collected: 06/10/21 12:55

Client ID: PB29-15-SS01

Date Received: 06/10/21

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	82.3		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16
Client ID: PB29-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:05
Date Received: 06/10/21
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	85.7		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-17

Date Collected: 06/10/21 13:20

Client ID: PB29-17-SS01

Date Received: 06/10/21

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	77.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-18

Date Collected: 06/10/21 13:40

Client ID: PB33-01-SS01

Date Received: 06/10/21

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	79.4		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-19

Date Collected: 06/10/21 13:50

Client ID: PB33-02-SS01

Date Received: 06/10/21

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	80.8		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20

Date Collected: 06/10/21 14:05

Client ID: PB33-03-SS01

Date Received: 06/10/21

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	76.0		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131453-21

Date Collected: 06/10/21 14:10

Client ID: PB33-04-SS01

Date Received: 06/10/21

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	83.2		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22

Date Collected: 06/10/21 07:50

Client ID: DUP-5

Date Received: 06/10/21

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	-	06/12/21 12:28	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,05-17 QC Batch ID: WG1511236-1 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Solids, Total	81.4	80.7	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 04,18-22 QC Batch ID: WG1511291-1 QC Sample: L2127720-05 Client ID: DUP Sample						
Solids, Total	69.1	69.2	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**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(*)
L2131453-01A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-01B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-01F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-02A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-02B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-02F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-03A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-03B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-03F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-04A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-04B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-04C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-04E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		TS(7),PA-8270SIM(14)
L2131453-05A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-05B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-05F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-06A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-06B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-06F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-07A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-07B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-07F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-08A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-08B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-08F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-09A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-09B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-09C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-09D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-09F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-10A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-10B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-10F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-11A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-11B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-11F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-12A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-12B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-12F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-13A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-13B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-13F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-14A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-14B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-14E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-14F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-15A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-15B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-15F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-16A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-16B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-16E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-16F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-17A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-17B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-17E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-17F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-18A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-18B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-18E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-19A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-19B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-19E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-20A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-20B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-20E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-21A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-21B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-21E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-22A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-22B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-22F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-23A	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23B	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23C	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23D	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23E	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23F	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131453**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-23G	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)
L2131453-23H	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		PB-6020T-PPB(180)
L2131453-24A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24C	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24D	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24E	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24F	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24G	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24H	Plastic 250ml HNO3 preserved	C	<2	<2	3.0	Y	Absent		PB-6020T-PPB(180)
L2131453-25A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-25B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

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: L2131453
Report Date: 07/06/21

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: L2131453
Report Date: 07/06/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

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-Terpeneol

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-Terpeneol; 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: 508-898-9220 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: 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 project-specific analyte list per attached

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		
31453-01	PB29-11-SS01	6/10	7A0	S	TS
-02	PB29-12-SS01		800		
-03	PB29-13-SS01		810		
-04	PB29-16-SS01		815		
-05	PB29-21-SS01		840		
-06	PB29-20-SS01		855		
-07	PB29-22-SS01		910		
-08	PB29-23-SS01		920		
-09	PB29-19-SS01		1005		
-10	PB29-25-SS01		1035		

Container Type: - Preservative: -

Relinquished By: *[Signature]* Date/Time: 6/10/10 1540
 Received By: *[Signature]* Date/Time: 6/10/10 1540

FORM NO 01-CDS (NJ) Rev. 5-2007-12

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: 06/11/21 ALPHA Job #: 221453

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3694

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank 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	TOTAL # BOTTLES
<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"/>	Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do (Please specify below)	
<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 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.

Relinquished By: *[Signature]* Date/Time: 6/10/10 1540
 Received By: *[Signature]* Date/Time: 6/10/10 1540
[Signature] 6/10/10 1540
[Signature] 6/10/10 1540



CHAIN OF CUSTODY

PAGE 2 OF 3

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: Standard Rush (ONLY IF PRE-APPROVED)
 Email: William.Schmidt@ransomenv.com
 These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list per attached

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		
31453-11	PB29-26-SS01	6/10	1045	S	TS
-12	PB29-27-SS01		1100		
-13	PB29-2A-SS01		1140		
-14	PB29-24-SS01		1235		
-15	PB29-15-SS01		1255		
-16	PB29-18-SS01		1305		
-17	PB29-17-SS01		1320		
-18	PB33-01-SS01		1340		
-19	PB33-02-SS01		1405	BSO	
-20	PB33-03-SS01		1405		

FORM NO. 01-01-011
 (Rev. 3-14-03)

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

Date Rec'd in Lab: 06/11/21

ALPHA Job #: 213453

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:
 PADEP Storage Tank Program

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"/>
<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 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 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"/>

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: [Signature] Date/Time: 6/10 1500
 Received By: [Signature] Date/Time: 6/10 1500
 [Signature] 6/11 0200 [Signature] 6/11/21 0200

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 Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3285

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 project-specific analyte list per attached

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 #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Due Date: Time:

Date Rec'd in Lab: 06/11/21

ALPHA Job #: L2131453

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
 PADEP Storage Tank Program

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 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"/>
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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 type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SHORTLIST 1-5

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
		Date	Time		
31453-21	PB33-04-5501	6/10	1410	S	TS
-22	DUP-5	6/10	750	S	↓
-23	FB-210610-1	6/10	1200	W	
-24	FB-210610-2	6/10	1400	W	
-25	TB				

Container Type	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/10/21 15:00	<i>[Signature]</i>	6/10/21 15:00
<i>[Signature]</i>	6/10/21 15:00	<i>[Signature]</i>	6-10-2021
<i>[Signature]</i>	6-10-21	<i>[Signature]</i>	6/10/21 02:00

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.

PADEP Short List Analytical List:

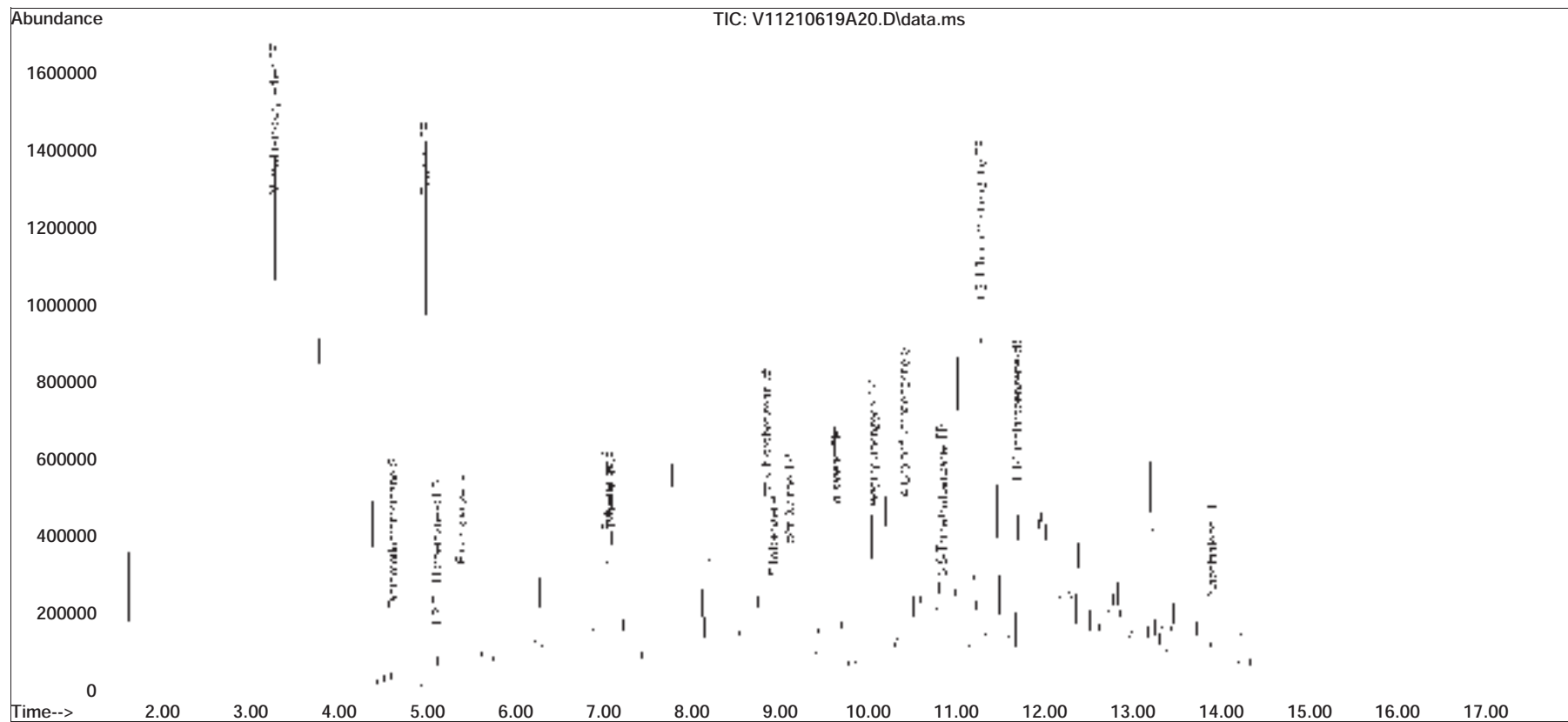
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA111\2021\210619A\
Data File : V11210619A20.D
Acq On : 19 Jun 2021 03:18 pm
Operator : VOA111:NLK
Sample : L2131453-02,31H,6.12,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 20 08:23:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

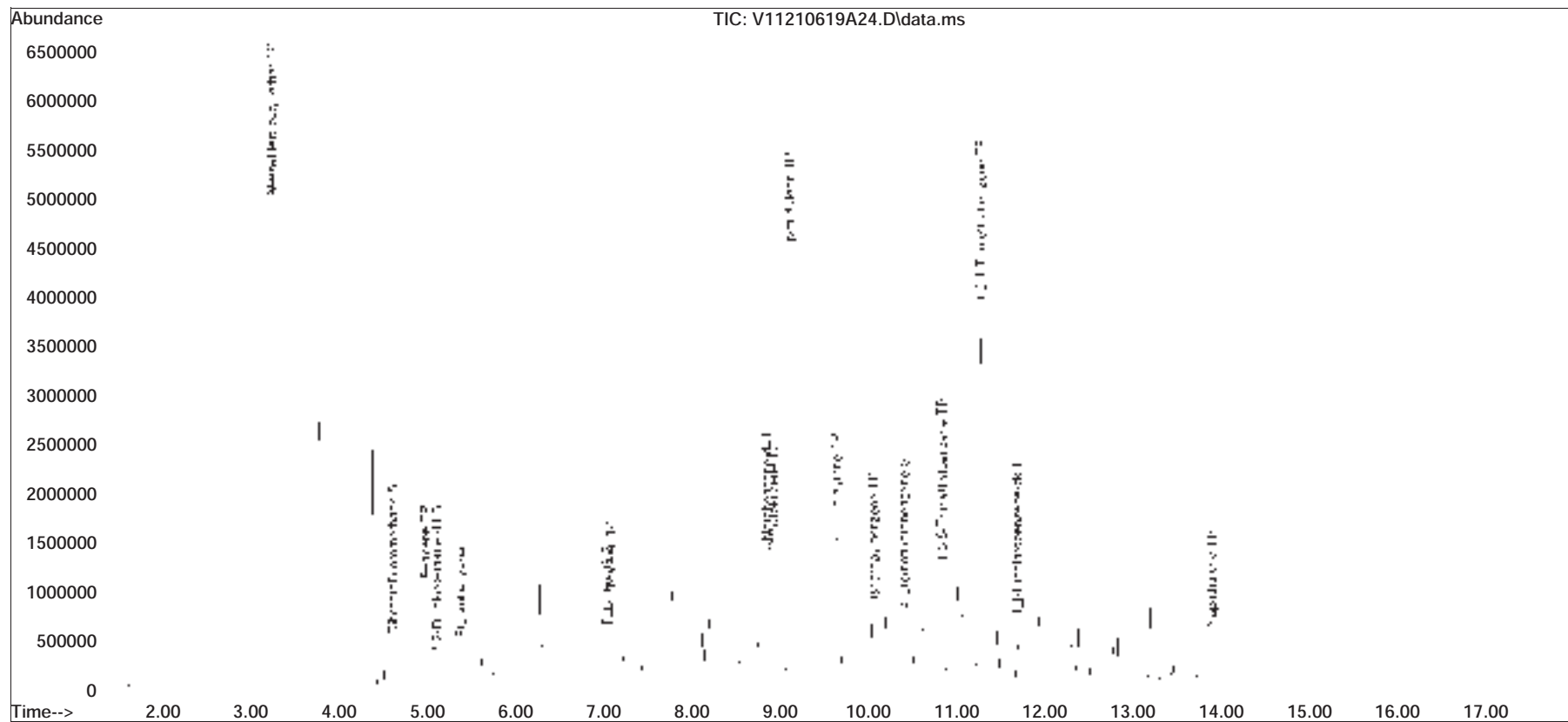


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A24.D
Acq On : 19 Jun 2021 04:59 pm
Operator : VOA111:NLK
Sample : L2131453-03,31H,5.02,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 20 08:23:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

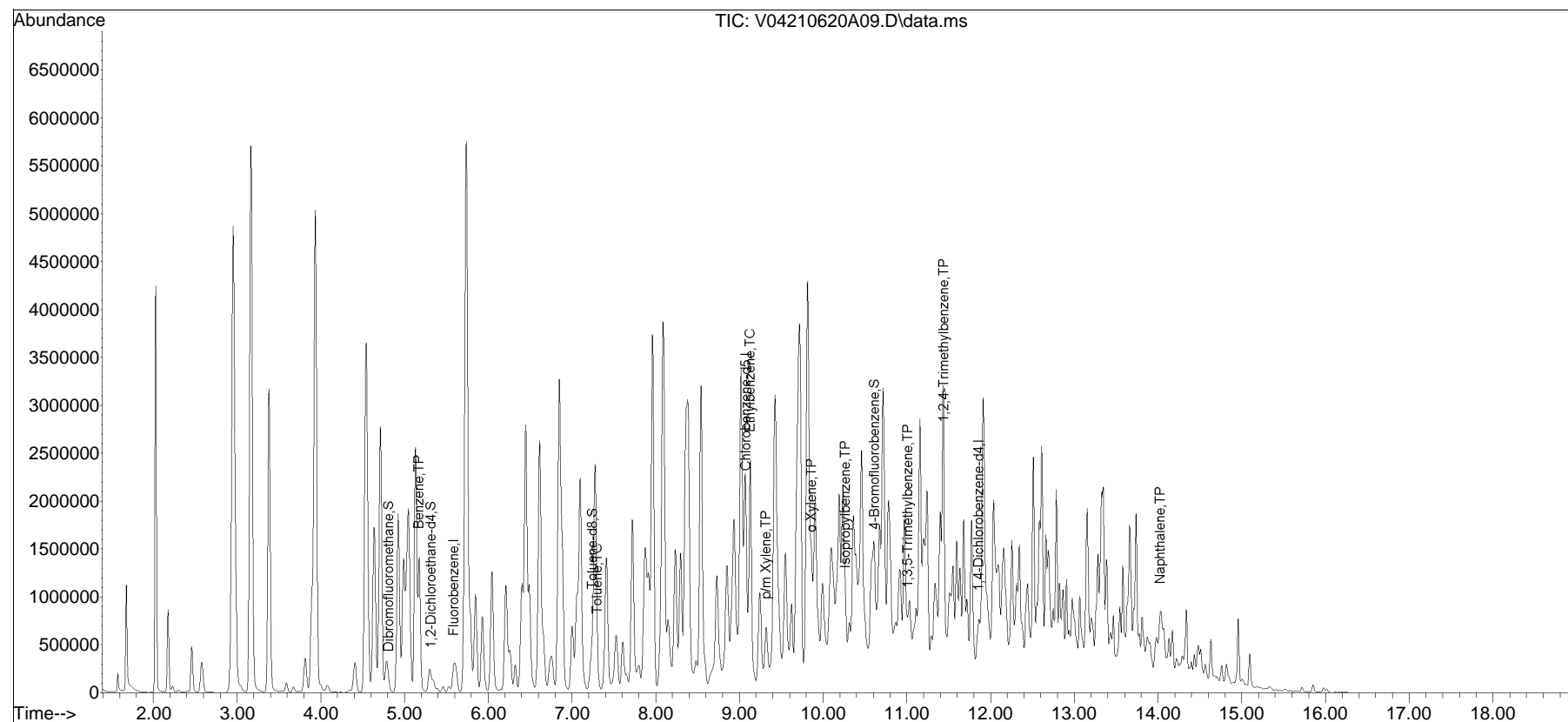


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
 Data File : V04210620A09.D
 Acq On : 20 Jun 2021 5:02 pm
 Operator : VOA104:JC
 Sample : L2131453-04,31H,6.00,5,0.100,,A
 Misc : WG1514499,ICAL18000
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 21 06:29:15 2021
 Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed May 26 11:45:26 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

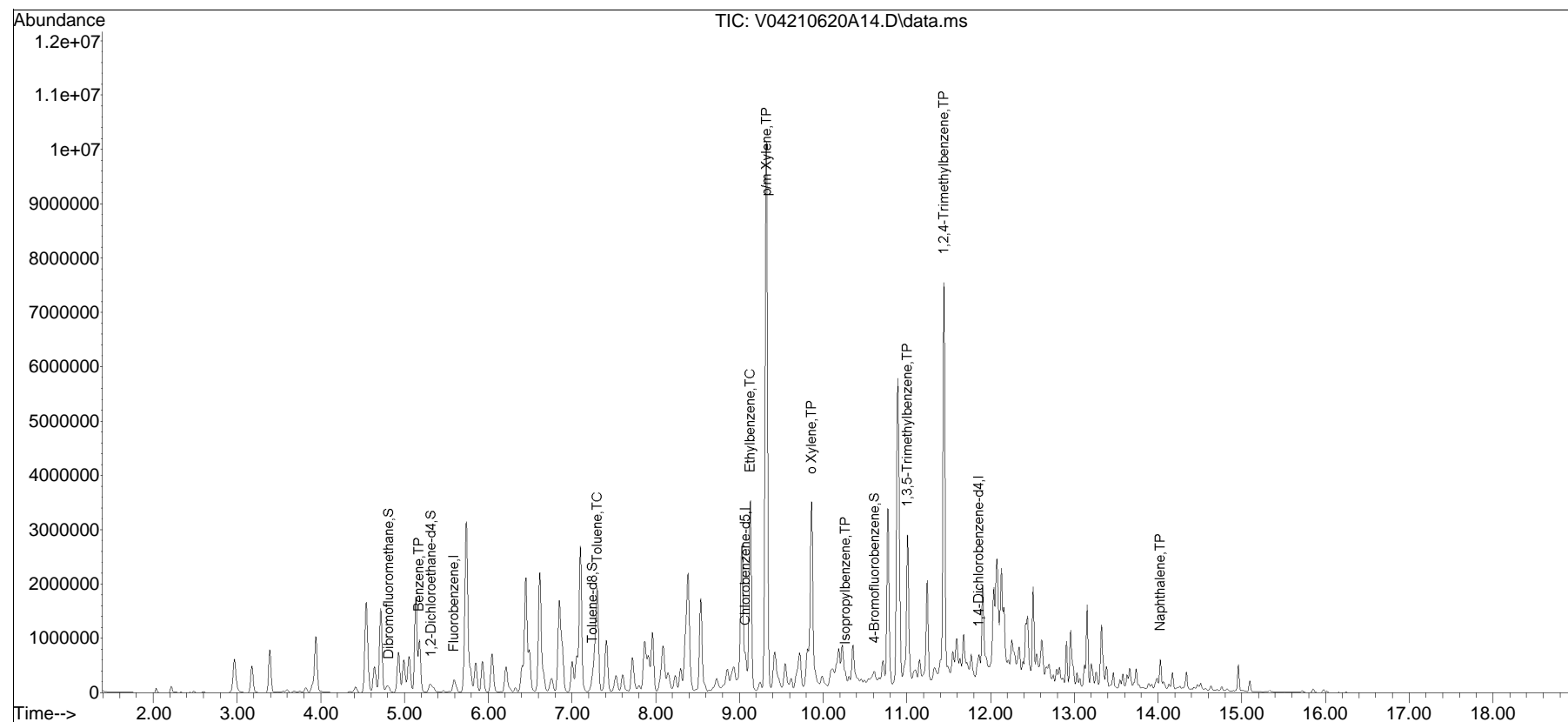


Quantitation Report (QT Reviewed)

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Data File : V04210620A14.D
Acq On : 20 Jun 2021 7:08 pm
Operator : VOA104:JC
Sample : L2131453-08D2,31H,6.06,5,0.020,,A
Misc : WG1514499,ICAL18000
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 21 06:03:38 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

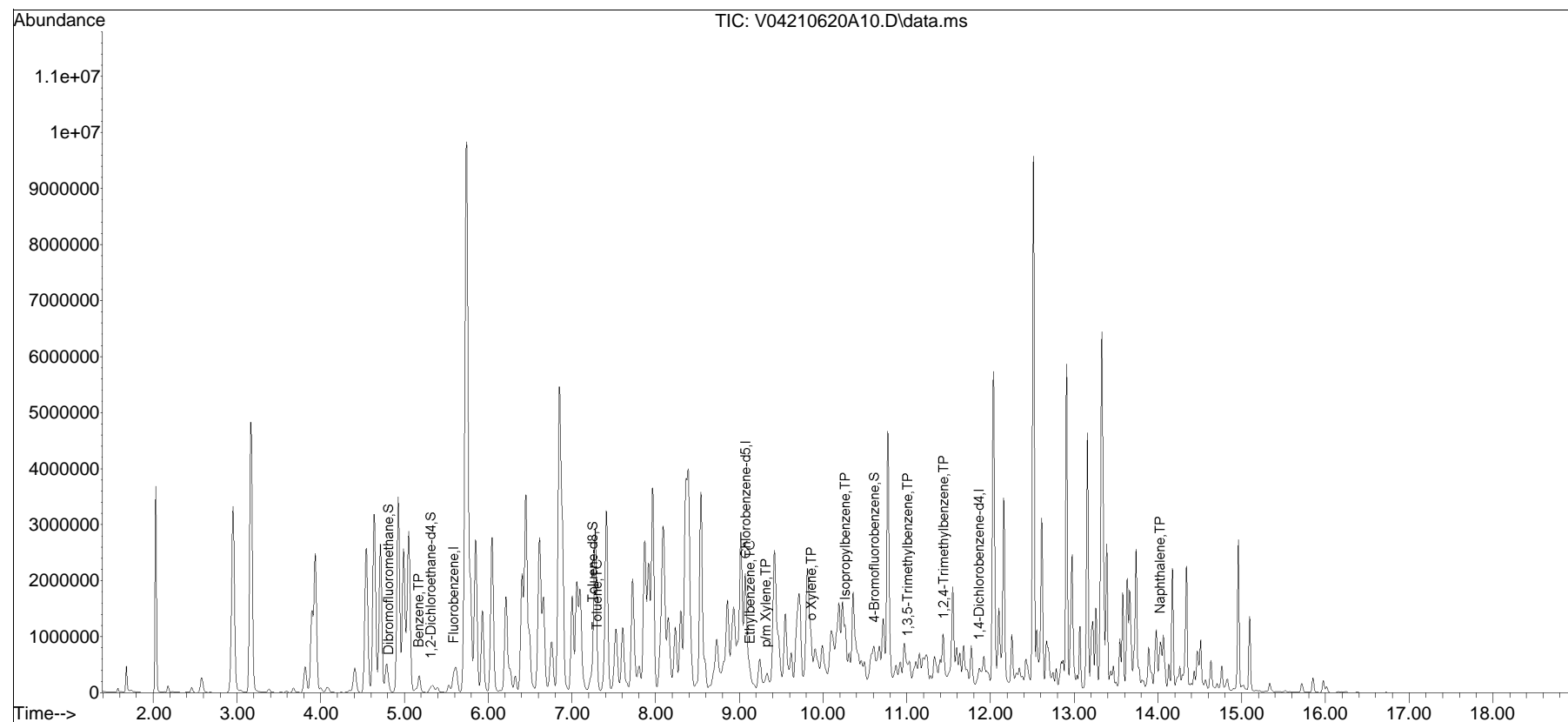


Quantitation Report (QT Reviewed)

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 Operator : VOA104:JC
 Sample : L2131453-10,31H,4.83,5,0.100,,A
 Misc : WG1514499,ICAL18000
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 21 06:31:08 2021
 Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed May 26 11:45:26 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

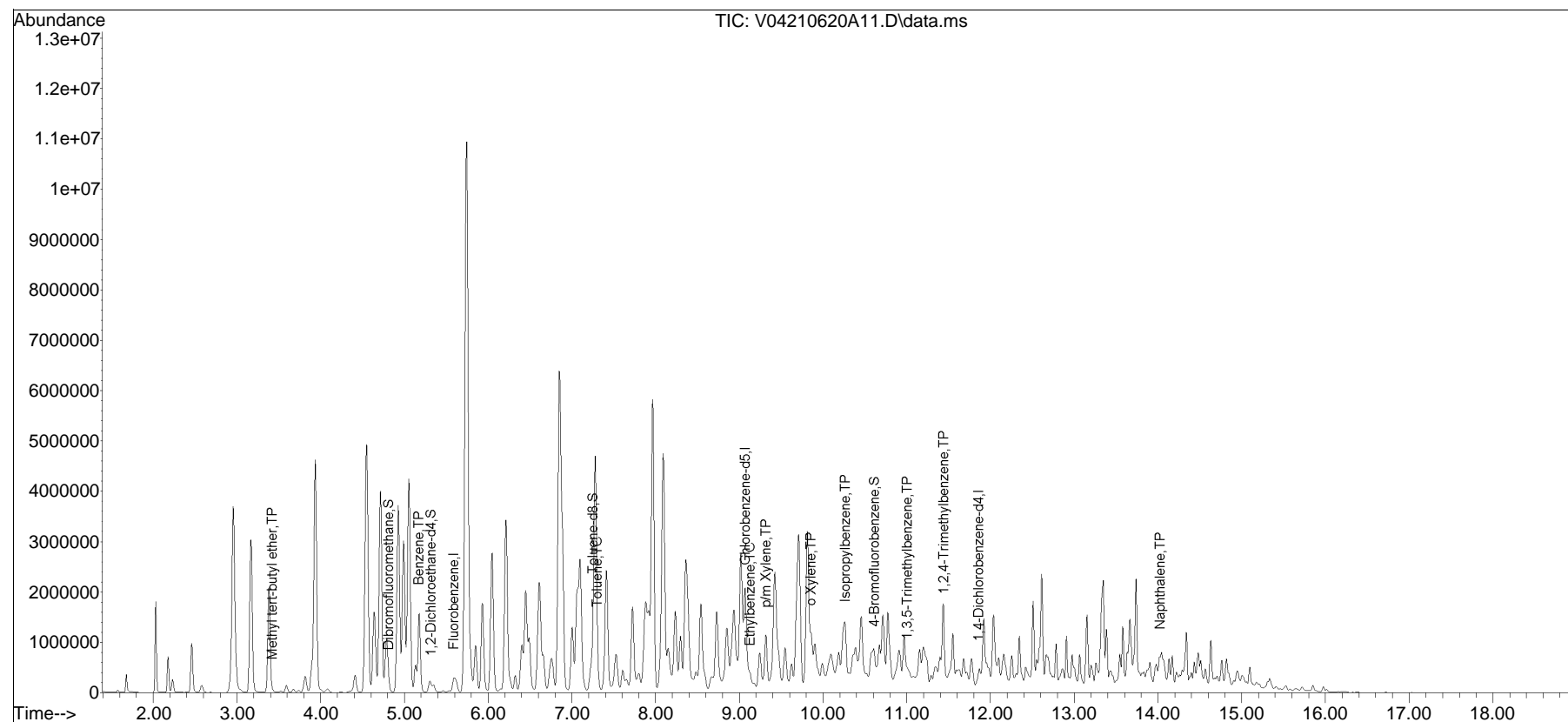


Quantitation Report (QT Reviewed)

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 Data File : V04210620A11.D
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 Operator : VOA104:JC
 Sample : L2131453-11,31H,5.21,5,0.100,,A
 Misc : WG1514499,ICAL18000
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 21 06:31:51 2021
 Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed May 26 11:45:26 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

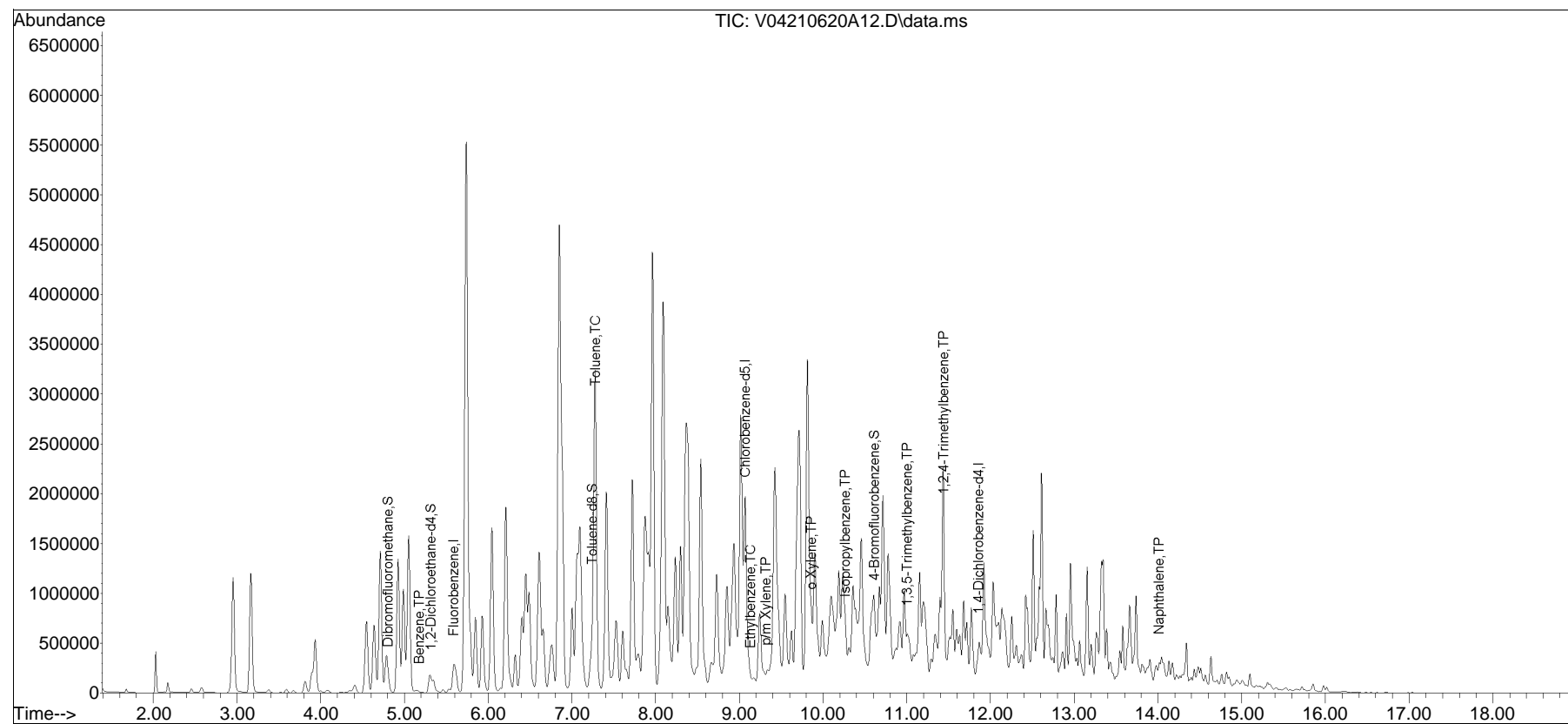


Quantitation Report (QT Reviewed)

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Operator : VOA104:JC
Sample : L2131453-12,31H,5.71,5,0.100,,A
Misc : WG1514499,ICAL18000
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 21 06:32:33 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

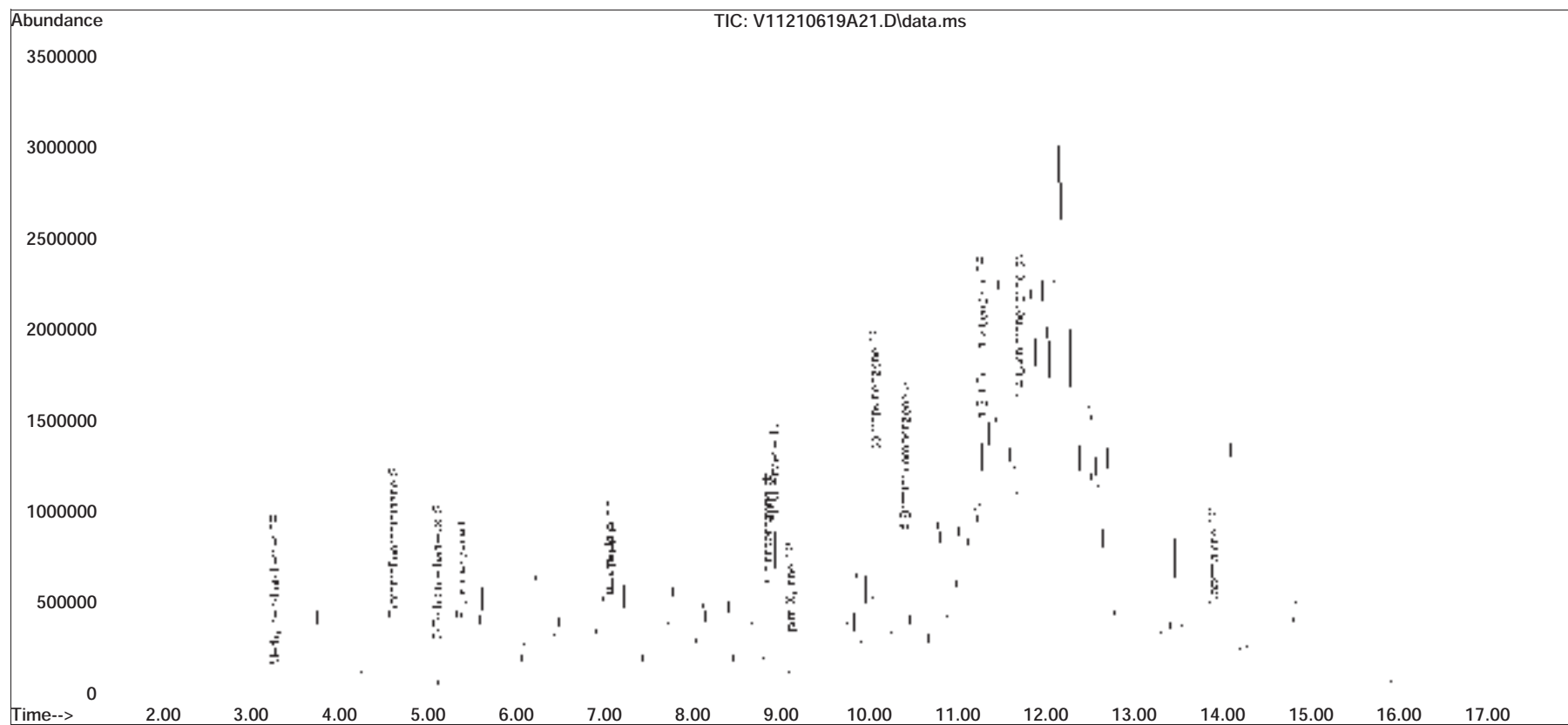


Quantitation Report (QT Reviewed)

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Data File : V11210619A21.D
Acq On : 19 Jun 2021 03:43 pm
Operator : VOA111:NLK
Sample : L2131453-17,31H,5.79,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 20 13:27:50 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

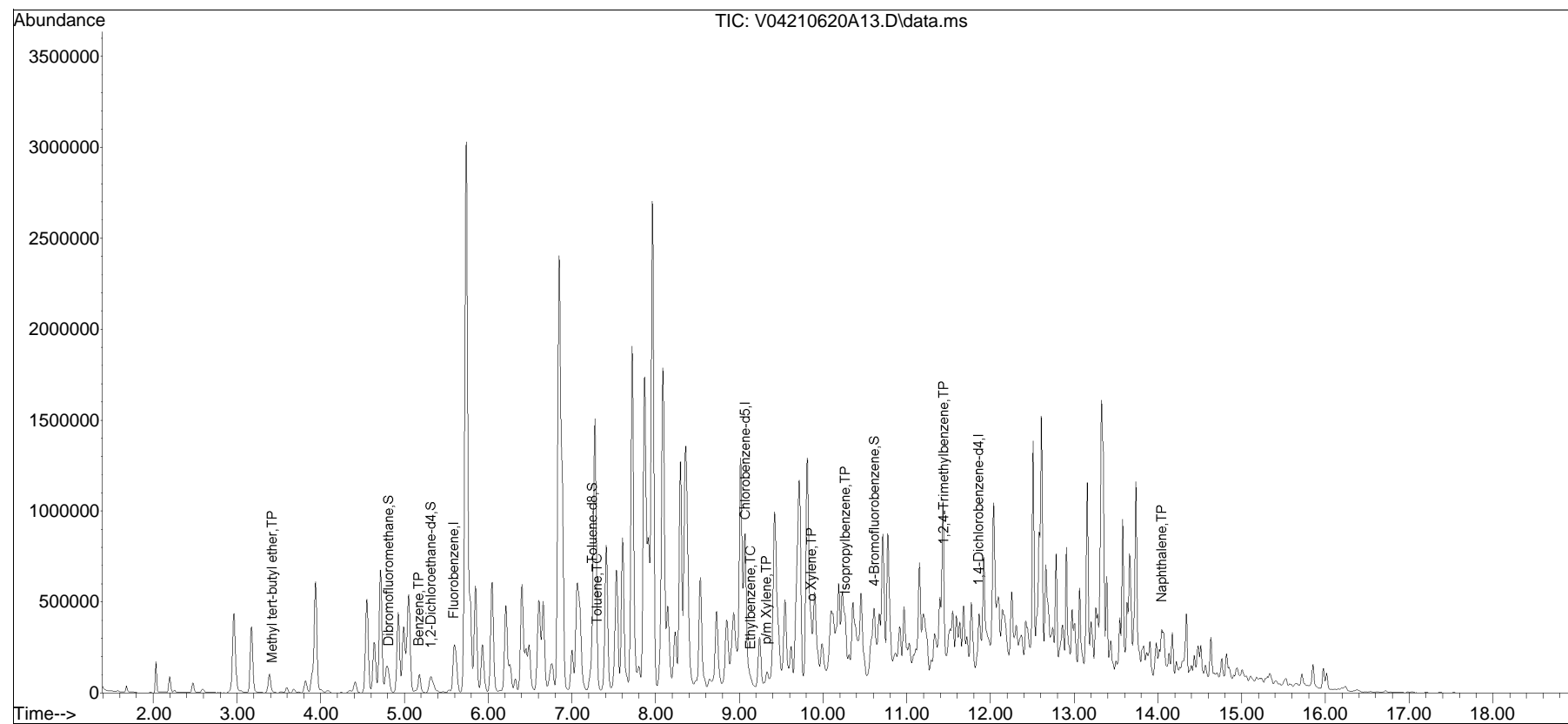


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A13.D
Acq On : 20 Jun 2021 6:43 pm
Operator : VOA104:JC
Sample : L2131453-18D,31H,6.54,5,0.050,,A
Misc : WG1514499,ICAL18000
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 21 06:03:34 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

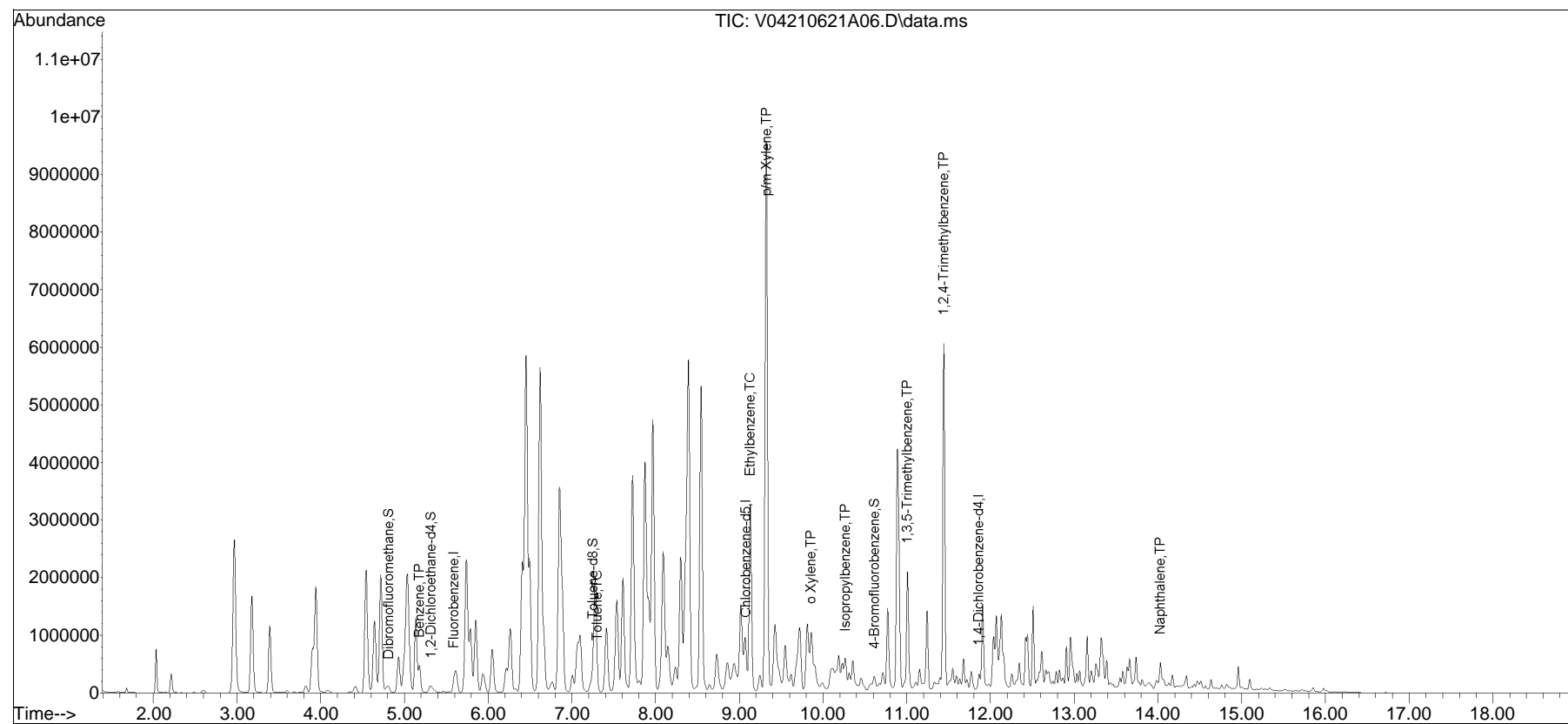


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210621A\
Data File : V04210621A06.D
Acq On : 21 Jun 2021 9:22 am
Operator : VOA104:JC
Sample : L2131453-21D2,31H,6.42,5,0.020,,A
Misc : WG1514499,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 21 11:54:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210621A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V04210621A01.D•





ANALYTICAL REPORT

Lab Number:	L2131595
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:	07/06/21

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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: L2131595

Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131595-01	PB33-05-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:30	06/11/21
L2131595-02	PB33-06-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:40	06/11/21
L2131595-03	PB33-07-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:50	06/11/21
L2131595-04	PB33-08-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:10	06/11/21
L2131595-05	PB33-09-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:20	06/11/21
L2131595-06	PB33-10-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:35	06/11/21
L2131595-07	PB33-11-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:45	06/11/21
L2131595-08	PB33-12-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:00	06/11/21
L2131595-09	PB33-13-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:10	06/11/21
L2131595-10	PB33-14-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:20	06/11/21
L2131595-11	PB33-15-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:30	06/11/21
L2131595-12	PB33-16-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:45	06/11/21
L2131595-13	PB33-17-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:00	06/11/21
L2131595-14	PB33-18-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:10	06/11/21
L2131595-15	PB33-19-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:20	06/11/21
L2131595-16	PB33-20-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:40	06/11/21
L2131595-17	PB33-21-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:50	06/11/21
L2131595-18	PB33-22-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:05	06/11/21
L2131595-19	PB33-23-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:20	06/11/21
L2131595-20	DUP-6	SOIL	PHILADELPHIA, PA	06/11/21 07:35	06/11/21
L2131595-21	FB-210611-1	WATER	PHILADELPHIA, PA	06/11/21 12:30	06/11/21
L2131595-22	FB-210611-2	WATER	PHILADELPHIA, PA	06/11/21 13:00	06/11/21
L2131595-23	TB	WATER	PHILADELPHIA, PA	06/11/21 07:30	06/11/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

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: L2131595
Report Date: 07/06/21

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.

Sample Receipt

L2131595-23: Headspace was noted in the sample containers submitted for PA Volatile Organics - EPA 8260C. The analysis was performed.

Volatile Organics

L2131595-02 and -06: 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.

L2131595-02 and -06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (137%); 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.

L2131595-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (143%) and 4-bromofluorobenzene (146%); 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.

L2131595-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (131%) and 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-07D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-08: 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.

L2131595-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (292%);

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Case Narrative (continued)

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.

L2131595-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (465%); 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.

L2131595-12: The internal standard (IS) response(s) for fluorobenzene (265%) and the surrogate recoveries for dibromofluoromethane (59%) and 1,2-dichloroethane-d4 (140%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2131595-14D: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 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.

L2131595-14D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

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: 07/06/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01 D2
 Client ID: PB33-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 14:18
 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	0.53	J	mg/kg	0.63	0.064	5
Benzene	46.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	190	E	mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	83.		mg/kg	0.32	0.045	5
p/m-Xylene	310	E	mg/kg	0.63	0.18	5
o-Xylene	100		mg/kg	0.32	0.092	5
Isopropylbenzene	12.		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	180	E	mg/kg	0.63	0.10	5
Naphthalene	15.		mg/kg	1.3	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01 D
 Client ID: PB33-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:43
 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						
Toluene	180		mg/kg	1.3	0.69	20
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	410		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	180		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-02
 Client ID: PB33-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:40
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 19:10
 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	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0085	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.051	0.0072	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.051	0.015	1
Xylenes, Total	ND		mg/kg	0.051	0.015	1
Isopropylbenzene	0.31		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1
Naphthalene	0.078	J	mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	137	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03
 Client ID: PB33-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:50
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 16:26
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0074		mg/kg	0.0018	0.00018	1
Benzene	0.14		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.056		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.060		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.060		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.010		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0018		mg/kg	0.0018	0.00030	1
Naphthalene	0.0019	J	mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04
Client ID: PB33-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 15:40
Analyst: JC
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	0.15		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.56		mg/kg	0.052	0.0074	1
p/m-Xylene	0.054	J	mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	0.054	J	mg/kg	0.052	0.015	1
Isopropylbenzene	2.7		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.044	J	mg/kg	0.10	0.017	1
Naphthalene	0.14	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	143	Q	70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	88		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05 D2
 Client ID: PB33-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 14:46
 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	0.53	0.054	5
Benzene	7.9		mg/kg	0.13	0.044	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.069	5
Toluene	2.7		mg/kg	0.27	0.14	5
1,2-Dibromoethane	ND		mg/kg	0.13	0.078	5
Ethylbenzene	53.		mg/kg	0.27	0.038	5
p/m-Xylene	210	E	mg/kg	0.53	0.15	5
o-Xylene	8.3		mg/kg	0.27	0.078	5
Isopropylbenzene	6.6		mg/kg	0.27	0.029	5
1,3,5-Trimethylbenzene	26.		mg/kg	0.53	0.052	5
1,2,4-Trimethylbenzene	67.		mg/kg	0.53	0.089	5
Naphthalene	7.4		mg/kg	1.1	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05 D
 Client ID: PB33-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 20:05
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	200		mg/kg	1.1	0.30	10
Xylenes, Total	210		mg/kg	0.27	0.078	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06
 Client ID: PB33-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:35
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 20:33
 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	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	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	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.015	J	mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1
Naphthalene	0.056	J	mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	137	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
 Client ID: PB33-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:45
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 21:00
 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	2.6		mg/kg	0.11	0.011	1
Benzene	12.		mg/kg	0.028	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	7.0		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	3.6		mg/kg	0.055	0.0078	1
p/m-Xylene	16.		mg/kg	0.11	0.031	1
o-Xylene	6.5		mg/kg	0.055	0.016	1
Xylenes, Total	22.		mg/kg	0.055	0.016	1
Isopropylbenzene	1.6		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	12.		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.11	0.018	1
Naphthalene	4.3		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	191	Q	70-130
Dibromofluoromethane	88		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07 D
 Client ID: PB33-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:45
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 15:13
 Analyst: JC
 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	34.		mg/kg	0.55	0.092	5
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
 Client ID: PB33-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:00
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 21:27
 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	0.56		mg/kg	0.11	0.011	1
Benzene	2.7		mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	0.036	J	mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	2.4		mg/kg	0.053	0.0075	1
p/m-Xylene	1.9		mg/kg	0.11	0.030	1
o-Xylene	0.036	J	mg/kg	0.053	0.016	1
Xylenes, Total	1.9	J	mg/kg	0.053	0.016	1
Isopropylbenzene	0.67		mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	4.9		mg/kg	0.11	0.018	1
Naphthalene	0.72		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
 Client ID: PB33-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:10
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 16:53
 Analyst: JC
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0023		mg/kg	0.0017	0.00017	1
Benzene	0.00053		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	0.00021	J	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	0.0069		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
Naphthalene	0.00070	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	108		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-10
 Client ID: PB33-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 17:21
 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	0.00066	J	mg/kg	0.0019	0.00019	1
Benzene	0.0011		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	0.00084	J	mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	0.00019	J	mg/kg	0.00095	0.00013	1
p/m-Xylene	0.00082	J	mg/kg	0.0019	0.00053	1
o-Xylene	0.00086	J	mg/kg	0.00095	0.00028	1
Xylenes, Total	0.0017	J	mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.086		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.010		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	292	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
 Client ID: PB33-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:30
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 17:48
 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	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00083	J	mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0055		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.017		mg/kg	0.0020	0.00056	1
o-Xylene	0.0065		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.024		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.016		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.015		mg/kg	0.0020	0.00033	1
Naphthalene	0.0043		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	465	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
 Client ID: PB33-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:45
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 18:15
 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	0.0026		mg/kg	0.0018	0.00018	1
Benzene	0.0099		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0038		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.0018		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0057		mg/kg	0.0018	0.00050	1
o-Xylene	0.0021		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0078		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.034		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00058	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0033	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	140	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	59	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
 Client ID: PB33-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:45
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 16:08
 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	0.14	0.014	1
Benzene	0.13		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	ND		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.028	J	mg/kg	0.068	0.0095	1
p/m-Xylene	0.065	J	mg/kg	0.14	0.038	1
o-Xylene	ND		mg/kg	0.068	0.020	1
Xylenes, Total	0.065	J	mg/kg	0.068	0.020	1
Isopropylbenzene	0.10		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.022	1
Naphthalene	0.047	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13
 Client ID: PB33-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:00
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 15:59
 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	0.00041	J	mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.00042	J	mg/kg	0.00090	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	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	121		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14 D
 Client ID: PB33-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:10
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 21:54
 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	1.1	0.11	10
Benzene	18.		mg/kg	0.27	0.090	10
1,2-Dichloroethane	ND		mg/kg	0.54	0.14	10
Toluene	ND		mg/kg	0.54	0.29	10
1,2-Dibromoethane	ND		mg/kg	0.27	0.16	10
Ethylbenzene	7.2		mg/kg	0.54	0.076	10
p/m-Xylene	2.2		mg/kg	1.1	0.30	10
o-Xylene	0.17	J	mg/kg	0.54	0.16	10
Xylenes, Total	2.4	J	mg/kg	0.54	0.16	10
Isopropylbenzene	8.5		mg/kg	0.54	0.059	10
1,3,5-Trimethylbenzene	1.7		mg/kg	1.1	0.10	10
1,2,4-Trimethylbenzene	29.		mg/kg	1.1	0.18	10
Naphthalene	8.0		mg/kg	2.2	0.35	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	132	Q	70-130
4-Bromofluorobenzene	143	Q	70-130
Dibromofluoromethane	84		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15
 Client ID: PB33-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 22:22
 Analyst: JC
 Percent Solids: 88%

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	0.10		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	1.7		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.32		mg/kg	0.067	0.0094	1
p/m-Xylene	7.2		mg/kg	0.13	0.037	1
o-Xylene	4.0		mg/kg	0.067	0.019	1
Xylenes, Total	11.		mg/kg	0.067	0.019	1
Isopropylbenzene	0.079		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.13	0.022	1
Naphthalene	0.087	J	mg/kg	0.27	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	90		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16
 Client ID: PB33-20-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:40
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 22:54
 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	0.0024	0.00024	1
Benzene	0.00060		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00066	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	0.00068	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
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	117		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
 Client ID: PB33-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:50
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 10:38
 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	0.0018	0.00018	1
Benzene	0.00019	J	mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00036	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.00070	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
 Client ID: PB33-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:05
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 22:29
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00025	J	mg/kg	0.0023	0.00023	1
Benzene	0.00050	J	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00022	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	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	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1
Naphthalene	ND		mg/kg	0.0046	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19 D2
 Client ID: PB33-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 11:28
 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	0.28	0.028	2.5
Benzene	0.20		mg/kg	0.071	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	ND		mg/kg	0.14	0.077	2.5
1,2-Dibromoethane	ND		mg/kg	0.071	0.041	2.5
Ethylbenzene	0.87		mg/kg	0.14	0.020	2.5
p/m-Xylene	10.		mg/kg	0.28	0.079	2.5
o-Xylene	ND		mg/kg	0.14	0.041	2.5
Xylenes, Total	10.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	4.0		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	2.4		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.3		mg/kg	0.57	0.092	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19 D
 Client ID: PB33-23-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:20
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 23:44
 Analyst: JC
 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	62.		mg/kg	1.1	0.19	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20 D2
 Client ID: DUP-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:35
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 16:36
 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	0.39	J	mg/kg	0.54	0.054	5
Benzene	30.		mg/kg	0.14	0.045	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.070	5
Toluene	130	E	mg/kg	0.27	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.079	5
Ethylbenzene	55.		mg/kg	0.27	0.038	5
p/m-Xylene	200	E	mg/kg	0.54	0.15	5
o-Xylene	70.		mg/kg	0.27	0.079	5
Isopropylbenzene	7.7		mg/kg	0.27	0.030	5
1,3,5-Trimethylbenzene	36.		mg/kg	0.54	0.052	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.54	0.090	5
Naphthalene	9.8		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20 D
 Client ID: DUP-6
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:35
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/21/21 07:52
 Analyst: MV
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	150		mg/kg	1.4	0.74	25
p/m-Xylene	240		mg/kg	2.7	0.76	25
Xylenes, Total	310		mg/kg	0.27	0.079	25
1,2,4-Trimethylbenzene	150		mg/kg	2.7	0.45	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
 Client ID: FB-210611-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:30
 Date Received: 06/11/21
 Field Prep: None

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/17/21 15:34
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/17/21 12:32

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: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
 Client ID: FB-210611-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:30
 Date Received: 06/11/21
 Field Prep: None

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 12:11
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	117		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22
 Client ID: FB-210611-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 13:00
 Date Received: 06/11/21
 Field Prep: None

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/17/21 15:41
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/17/21 12:32

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: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22
 Client ID: FB-210611-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 13:00
 Date Received: 06/11/21
 Field Prep: None

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 12:34
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-23
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/17/21 15:47
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/17/21 12:32

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: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-23
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
 Date Received: 06/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/20/21 12:57
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	117		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-23 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-10					
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	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-15					
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	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,18 Batch: WG1514703-5					
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	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,09-13 Batch: WG1514861-5					
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	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 07:25
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04-05,07,12,20 Batch: WG1514864-10					
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	111		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02,05-08,14-15 Batch: WG1514864-5					
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	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 06/20/21 11:01
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-23 Batch: WG1514918-5					
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
Naphthalene	0.22	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	121		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17 Batch: WG1515275-5					
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	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131595

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 21-23 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-13 WG1514499-14								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,18 Batch: WG1514703-3 WG1514703-4								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,09-13 Batch: WG1514861-3 WG1514861-4									
Methyl tert butyl ether	99		99		66-130		0		30
Benzene	104		103		70-130		1		30
1,2-Dichloroethane	106		104		70-130		2		30
Toluene	100		98		70-130		2		30
1,2-Dibromoethane	103		100		70-130		3		30
Ethylbenzene	103		102		70-130		1		30
p/m-Xylene	106		103		70-130		3		30
o-Xylene	107		103		70-130		4		30
Isopropylbenzene	106		106		70-130		0		30
1,3,5-Trimethylbenzene	108		107		70-130		1		30
1,2,4-Trimethylbenzene	108		107		70-130		1		30
Naphthalene	110		111		70-130		1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02,05-08,14-15 Batch: WG1514864-3 WG1514864-4								
Methyl tert butyl ether	99		99		66-130	0		30
Benzene	104		103		70-130	1		30
1,2-Dichloroethane	106		104		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	103		100		70-130	3		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	106		103		70-130	3		30
o-Xylene	107		103		70-130	4		30
Isopropylbenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	108		107		70-130	1		30
1,2,4-Trimethylbenzene	108		107		70-130	1		30
Naphthalene	110		111		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04-05,07,12,20 Batch: WG1514864-8 WG1514864-9									
Methyl tert butyl ether	100		108		66-130	8		30	
Benzene	110		110		70-130	0		30	
1,2-Dichloroethane	97		99		70-130	2		30	
Toluene	109		110		70-130	1		30	
1,2-Dibromoethane	104		108		70-130	4		30	
Ethylbenzene	112		112		70-130	0		30	
p/m-Xylene	104		104		70-130	0		30	
o-Xylene	105		107		70-130	2		30	
Isopropylbenzene	122		120		70-130	2		30	
1,3,5-Trimethylbenzene	120		118		70-130	2		30	
1,2,4-Trimethylbenzene	120		119		70-130	1		30	
Naphthalene	112		116		70-130	4		30	

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	103		106		70-130
Toluene-d8	111		113		70-130
4-Bromofluorobenzene	120		118		70-130
Dibromofluoromethane	90		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-23 Batch: WG1514918-3 WG1514918-4								
Methyl tert butyl ether	72		72		63-130	0		20
Benzene	96		94		70-130	2		20
1,2-Dichloroethane	86		88		70-130	2		20
Toluene	93		92		70-130	1		20
Ethylbenzene	97		94		70-130	3		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20
Naphthalene	85		86		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		96		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	106		107		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17 Batch: WG1515275-3 WG1515275-4								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01
 Client ID: PB33-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
 Date Received: 06/11/21
 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	13.0		mg/kg	2.37	0.127	1	06/21/21 20:22	07/05/21 16:12	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-02
 Client ID: PB33-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:40
 Date Received: 06/11/21
 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	6.69		mg/kg	2.29	0.123	1	06/21/21 20:22	07/05/21 15:58	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03

Date Collected: 06/11/21 07:50

Client ID: PB33-07-SS01

Date Received: 06/11/21

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	8.06		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 16:03	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04

Date Collected: 06/11/21 08:10

Client ID: PB33-08-SS01

Date Received: 06/11/21

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	8.52		mg/kg	2.22	0.119	1	06/21/21 20:22	07/05/21 16:08	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05

Date Collected: 06/11/21 08:20

Client ID: PB33-09-SS01

Date Received: 06/11/21

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	10.2		mg/kg	2.33	0.125	1	06/21/21 20:22	07/05/21 16:44	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06

Date Collected: 06/11/21 08:35

Client ID: PB33-10-SS01

Date Received: 06/11/21

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	13.0		mg/kg	2.25	0.120	1	06/21/21 20:22	07/05/21 16:49	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-07

Date Collected: 06/11/21 08:45

Client ID: PB33-11-SS01

Date Received: 06/11/21

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	7.51		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 16:53	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
 Client ID: PB33-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:00
 Date Received: 06/11/21
 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	9.05		mg/kg	2.28	0.122	1	06/21/21 20:22	07/05/21 16:58	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
 Client ID: PB33-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:10
 Date Received: 06/11/21
 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	6.33		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:03	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-10

Date Collected: 06/11/21 09:20

Client ID: PB33-14-SS01

Date Received: 06/11/21

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	8.41		mg/kg	2.41	0.129	1	06/21/21 20:22	07/05/21 17:07	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
 Client ID: PB33-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:30
 Date Received: 06/11/21
 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	10.0		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:12	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
 Client ID: PB33-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:45
 Date Received: 06/11/21
 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	46.7		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:16	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13

Date Collected: 06/11/21 10:00

Client ID: PB33-17-SS01

Date Received: 06/11/21

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	10.0		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:21	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14

Date Collected: 06/11/21 10:10

Client ID: PB33-18-SS01

Date Received: 06/11/21

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	9.81		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:26	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15

Date Collected: 06/11/21 11:20

Client ID: PB33-19-SS01

Date Received: 06/11/21

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	61.3		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 17:48	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16

Date Collected: 06/11/21 11:40

Client ID: PB33-20-SS01

Date Received: 06/11/21

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	372		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:53	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
 Client ID: PB33-21-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:50
 Date Received: 06/11/21
 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	36.6		mg/kg	2.24	0.120	1	06/21/21 20:22	07/05/21 17:58	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
 Client ID: PB33-22-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:05
 Date Received: 06/11/21
 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	8.82		mg/kg	2.17	0.116	1	06/21/21 20:22	07/05/21 18:03	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19

Date Collected: 06/11/21 12:20

Client ID: PB33-23-SS01

Date Received: 06/11/21

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	8.86		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 18:07	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20

Date Collected: 06/11/21 07:35

Client ID: DUP-6

Date Received: 06/11/21

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	8.92		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 18:12	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21

Date Collected: 06/11/21 12:30

Client ID: FB-210611-1

Date Received: 06/11/21

Sample Location: PHILADELPHIA, PA

Field Prep: None

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	06/19/21 16:27	06/22/21 20:22	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22

Date Collected: 06/11/21 13:00

Client ID: FB-210611-2

Date Received: 06/11/21

Sample Location: PHILADELPHIA, PA

Field Prep: None

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	06/19/21 16:27	06/22/21 20:27	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

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): 21-22 Batch: WG1513916-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 15:18	1,6020B	CD

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): 01-20 Batch: WG1514849-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/21/21 20:22	07/05/21 15:49	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1513916-2								
Lead, Total	105		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514849-2 SRM Lot Number: D109-540								
Lead, Total	86		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

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): 21-22 QC Batch ID: WG1513916-3 QC Sample: L2132132-03 Client ID: MS Sample												
Lead, Total	ND	510	555.8	109		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-3 QC Sample: L2131595-01 Client ID: PB33-05-SS01												
Lead, Total	13.0	49.2	51.8	79		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131595

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1513916-4 QC Sample: L2132132-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-4 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Lead, Total	13.0	10.8	mg/kg	18		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01

Date Collected: 06/11/21 07:30

Client ID: PB33-05-SS01

Date Received: 06/11/21

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	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-02

Date Collected: 06/11/21 07:40

Client ID: PB33-06-SS01

Date Received: 06/11/21

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	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03

Date Collected: 06/11/21 07:50

Client ID: PB33-07-SS01

Date Received: 06/11/21

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	89.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-04

Date Collected: 06/11/21 08:10

Client ID: PB33-08-SS01

Date Received: 06/11/21

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	87.4		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-05

Date Collected: 06/11/21 08:20

Client ID: PB33-09-SS01

Date Received: 06/11/21

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	83.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06

Date Collected: 06/11/21 08:35

Client ID: PB33-10-SS01

Date Received: 06/11/21

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	83.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Client ID: PB33-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:45
Date Received: 06/11/21
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	82.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
Client ID: PB33-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:00
Date Received: 06/11/21
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	85.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
 Client ID: PB33-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:10
 Date Received: 06/11/21
 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	84.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-10

Date Collected: 06/11/21 09:20

Client ID: PB33-14-SS01

Date Received: 06/11/21

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	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11

Date Collected: 06/11/21 09:30

Client ID: PB33-15-SS01

Date Received: 06/11/21

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	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
Client ID: PB33-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:45
Date Received: 06/11/21
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	89.2		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13
Client ID: PB33-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:00
Date Received: 06/11/21
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	86.6		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14
Client ID: PB33-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:10
Date Received: 06/11/21
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	84.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15

Date Collected: 06/11/21 11:20

Client ID: PB33-19-SS01

Date Received: 06/11/21

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	87.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16
Client ID: PB33-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:40
Date Received: 06/11/21
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	83.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
Client ID: PB33-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:50
Date Received: 06/11/21
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	86.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-18

Date Collected: 06/11/21 12:05

Client ID: PB33-22-SS01

Date Received: 06/11/21

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	89.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-19

Date Collected: 06/11/21 12:20

Client ID: PB33-23-SS01

Date Received: 06/11/21

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	-	06/12/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**SAMPLE RESULTS**

Lab ID: L2131595-20

Date Collected: 06/11/21 07:35

Client ID: DUP-6

Date Received: 06/11/21

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	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131595

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1511258-1 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Solids, Total	82.2	81.8	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**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(*)
L2131595-01A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-01B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-02A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-02B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-03A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-03B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-04A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-04B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-05A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-05B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-05C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-05D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-06A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-06B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-07A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-07B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-08A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-08B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-09A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-09B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-10A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-10B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2131595**Project Number:** 200.00135.005.03**Report Date:** 07/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-11A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-11B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-12A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131595-12B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-13A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-13B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-14A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-14B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-15A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-15B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-16A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-16B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-16C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-16D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-17A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-17B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-18A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-18B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-19A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-19B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-20A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-20B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-20E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-21A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-22A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2131595-23A	Vial HCl preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-23B	Vial HCl preserved	B	NA		4.7	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.

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.

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.

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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.

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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-Terpeneol

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-Terpeneol; 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 #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

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
PADEP Storage Tank Program

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	TOTAL # BOTTLES
<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"/>	Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do (Please specify below)	5
<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"/>	Sample Specific Comments	5
<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"/>		5
<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"/>		5
<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"/>		5
<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"/>		5
<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"/>		5
<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"/>		5
<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"/>		5
<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"/>		5

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
31595-01	PB33-05-SS01	6/11	0730	S	TS
-02	PB33-06-SS01		0740		
-03	PB33-07-SS01		0750		
-04	PB33-08-SS01		0810		
-05	PB33-09-SS01		0820		
-06	PB33-10-SS01		0835		
-07	PB33-11-SS01		0845		
-08	PB33-12-SS01		0900		
-09	PB33-13-SS01		0910		
-10	PB33-14-SS01		0920		

Container Type	Preservative
-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/11/2020	<i>[Signature]</i>	6/11/2020
<i>[Signature]</i>	6/11/2020	<i>[Signature]</i>	6/11/2020
<i>[Signature]</i>	6/11/2020	<i>[Signature]</i>	6/11/2020

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 #: 200.00135.005.03
 Project Manager: William Schmidt
 ALPHA Quote #: 13161

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 per attached
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

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

Date Rec'd in Lab: 6/12/21 ALPHA Job #: L2131595

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
 PADEP Storage Tank Program

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
31595-01	PB33-15-5501	6/11	0930	S	TS
-12	PB33-16-5501		0945		
-13	PB33-17-5501		1000		
-14	PB33-18-5501		1010		
-15	PB33-19-5501		1120		
-16	PB33-20-5501		1140		
-17	PB33-21-5501		1150		
-18	PB33-22-5501		1205		
-19	PB33-23-5501		1220		
-20	Dup-6		0735		

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 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 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 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"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type Preservative

Refrigerated By: <i>[Signature]</i>	Date/Time: 6/11	Received By: <i>[Signature]</i>	Date/Time: 6/11 1350
<i>[Signature]</i>	6/11 1300	<i>[Signature]</i>	6/11 1800
<i>[Signature]</i>	6/11 2200	<i>[Signature]</i>	6/11/21 2200
<i>[Signature]</i>	6/12/21 0240	<i>[Signature]</i>	6/12/21 0240

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 01-21(ML)
Rev. 8-JAN-12



CHAIN OF CUSTODY

PAGE 3 OF 3

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 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

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been Previously analyzed by Alpha

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

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

PADEP Storage Tank Program

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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, 2	Sample Specific Comments	TOTAL # BOTTLES
		Date	Time															
31595-21	FB-210611-1	6/11	1230	W		<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"/>		0
-22	FB-210611-2	↓	1300	W		<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"/>		6
-23	TB	↓		W		<input type="checkbox"/>	<input 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"/>		2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Container Type
 Preservative

Relinquished By: *[Signature]* Date/Time: 6/11 1350
 Received By: *[Signature]* Date/Time: 6/12/21 0240

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 our Payment Terms.

FORM NO. 11-01(1/12)
 (rev. 5-10-12)

PADEP Short List Analytical List:

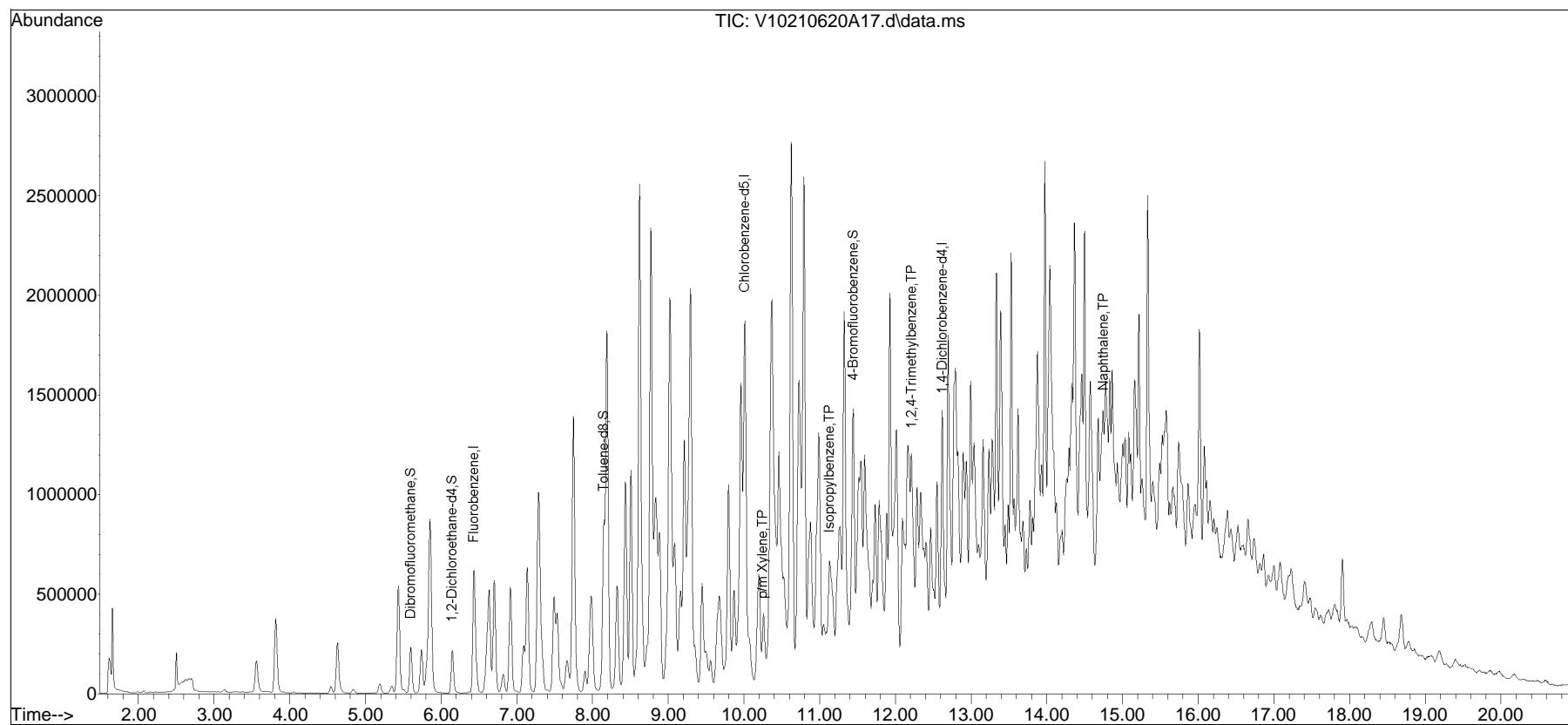
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA110\2021\210620A\
Data File : V10210620A17.d
Acq On : 20 Jun 2021 7:10 pm
Operator : VOA110:JC
Sample : L2131595-02,31H,7.22,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 21 05:49:32 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

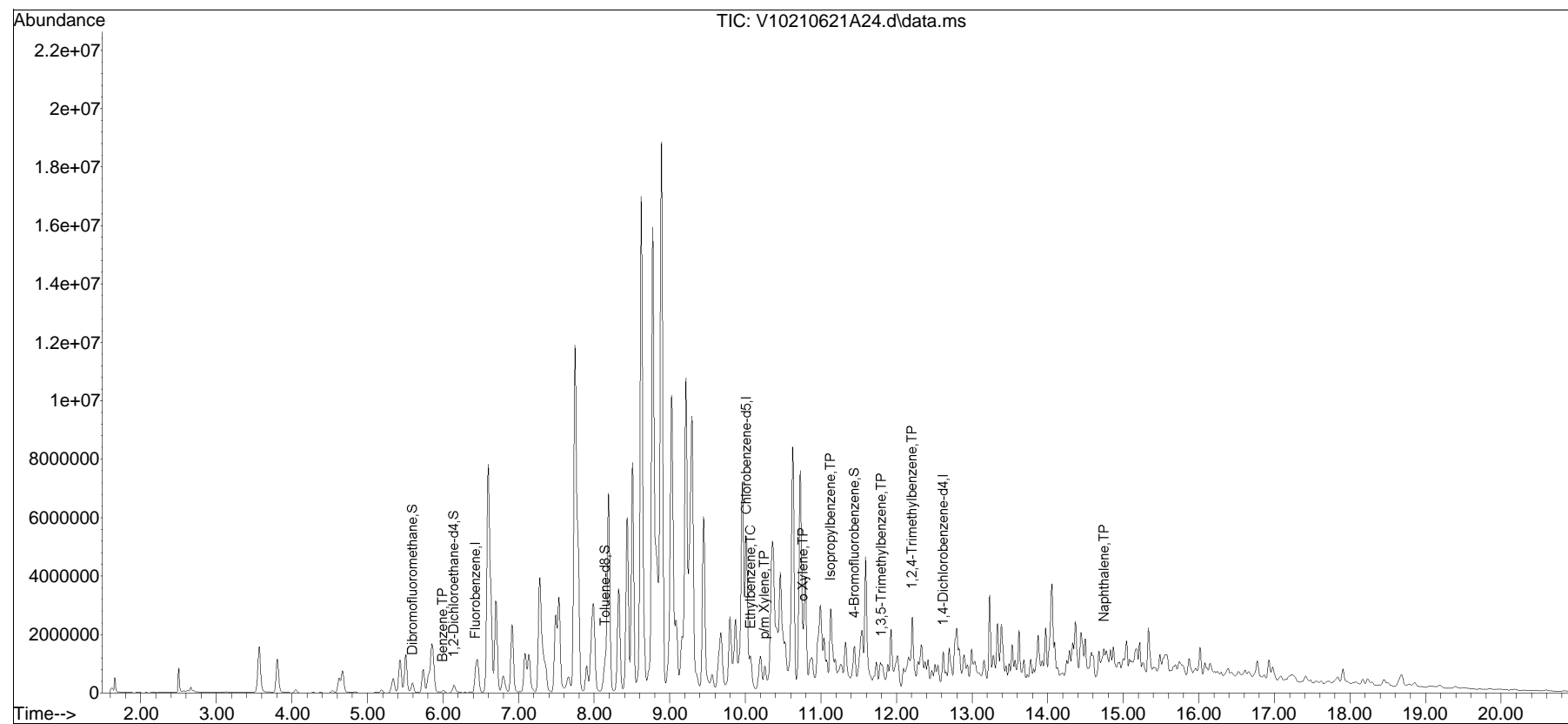


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A24.d
Acq On : 21 Jun 2021 3:40 pm
Operator : VOA110:JC
Sample : L2131595-04,31H,6.36,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 22 08:17:24 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•

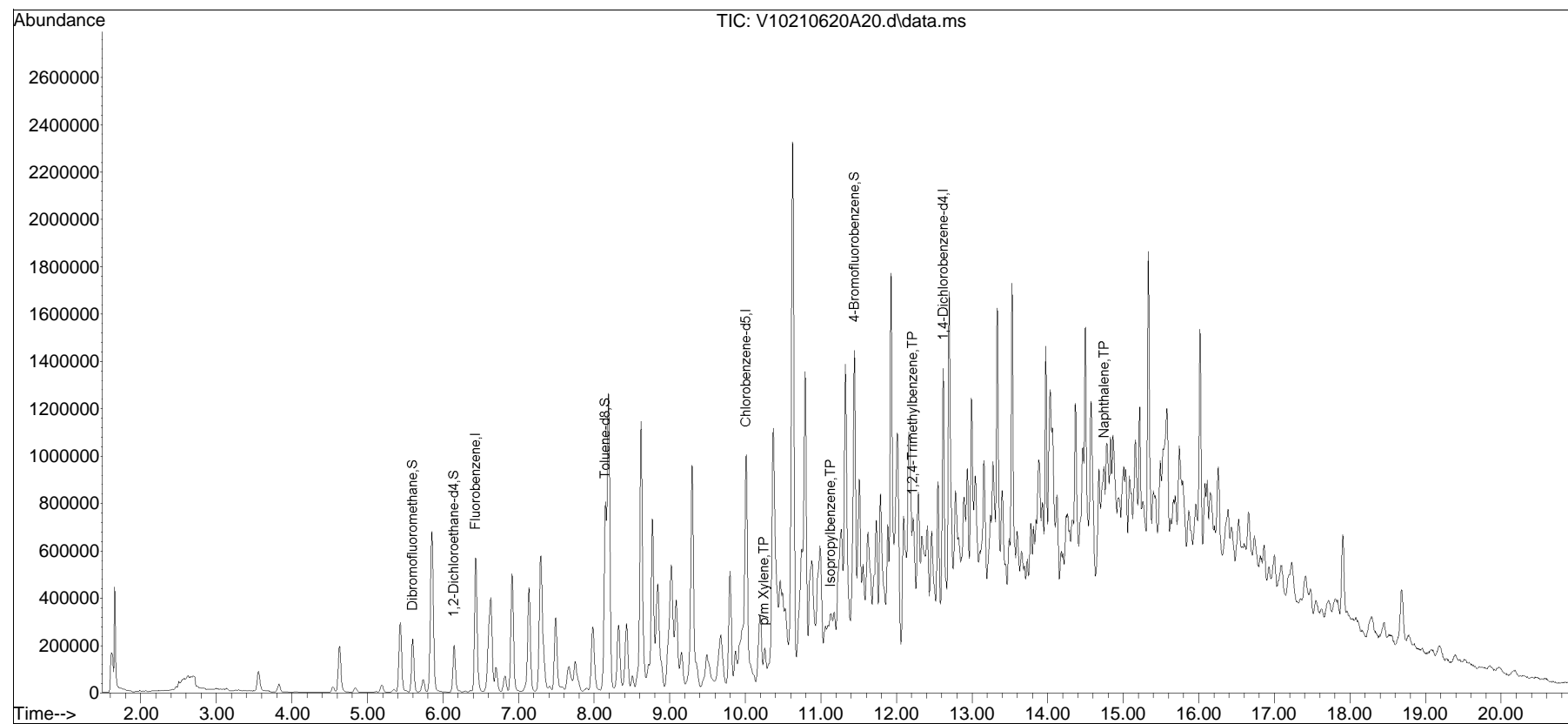


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A20.d
Acq On : 20 Jun 2021 8:33 pm
Operator : VOA110:JC
Sample : L2131595-06,31H,6.43,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 21 05:49:46 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

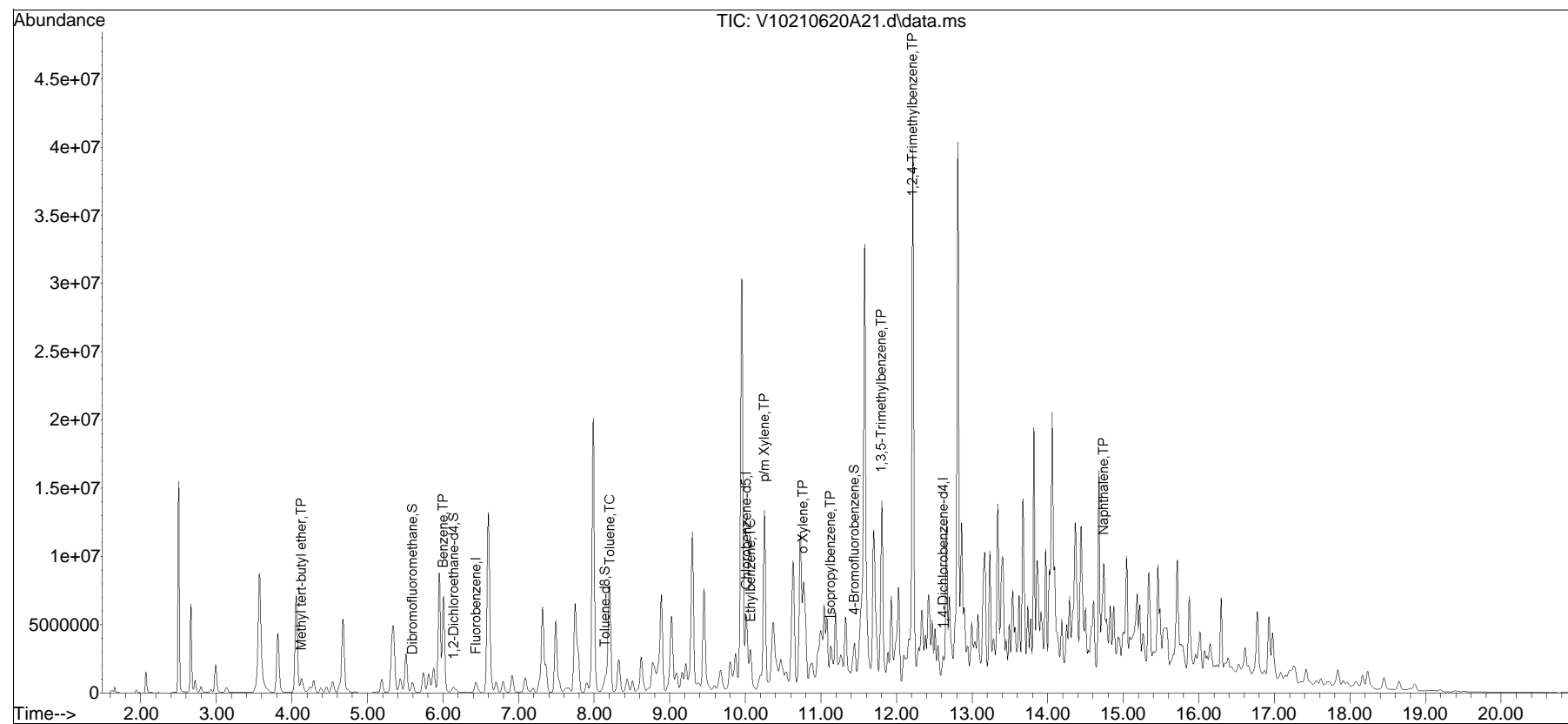


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A21.d
Acq On : 20 Jun 2021 9:00 pm
Operator : VOA110:JC
Sample : L2131595-07,31H,6.81,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 21 06:57:20 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

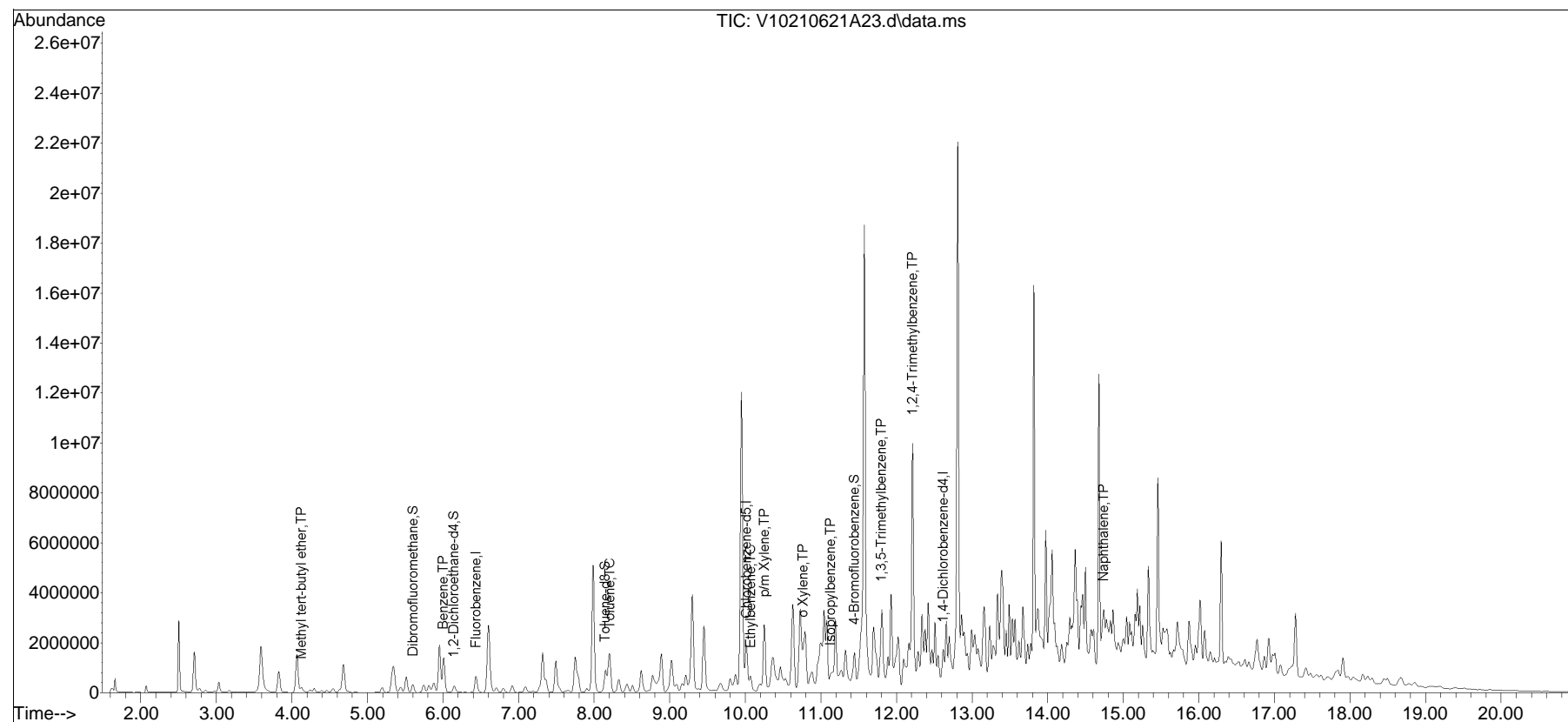


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A23.d
Acq On : 21 Jun 2021 3:13 pm
Operator : VOA110:JC
Sample : L2131595-07D,31H,6.81,5,0.020,,A
Misc : WG1514864,ICAL17863
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 08:17:04 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•

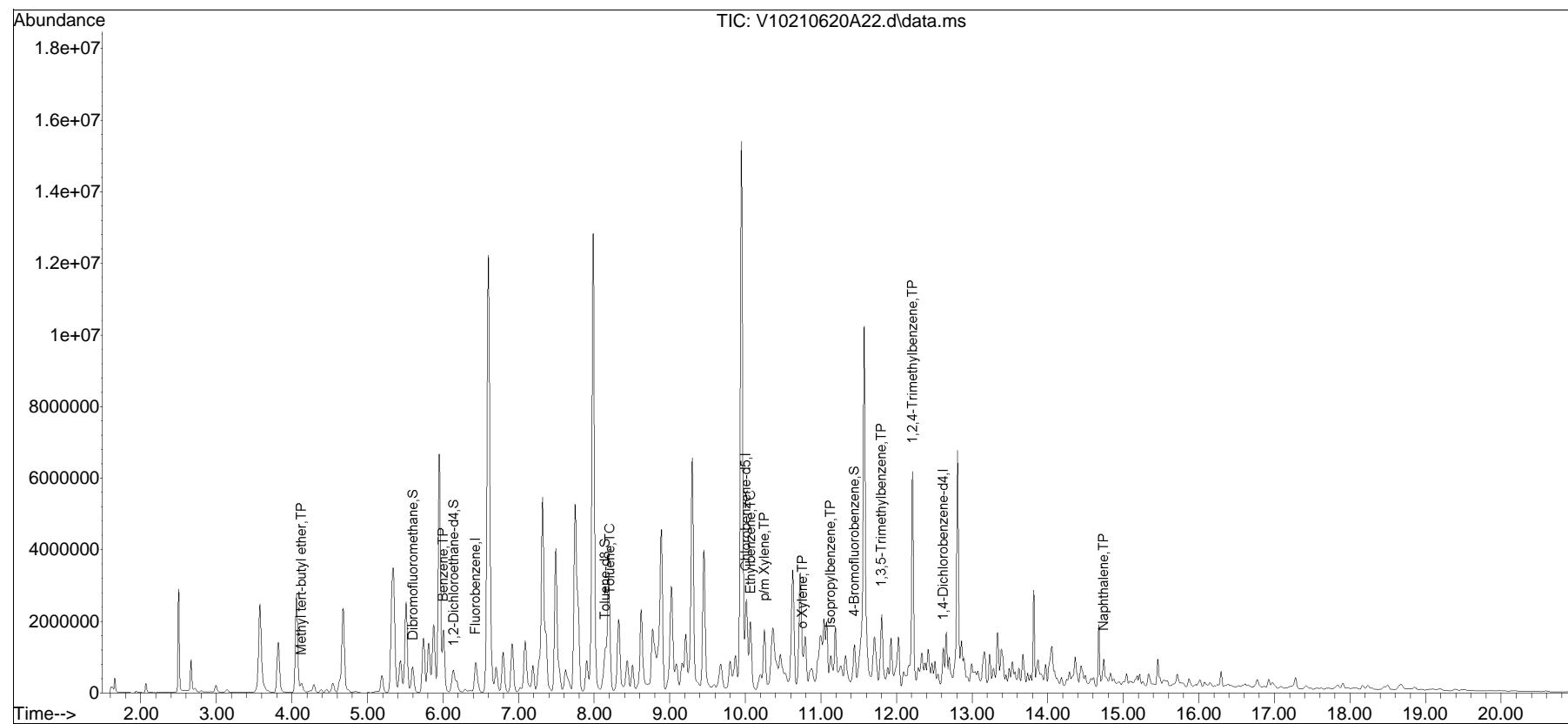


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A22.d
Acq On : 20 Jun 2021 9:27 pm
Operator : VOA110:JC
Sample : L2131595-08,31H,6.58,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 21 06:57:47 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

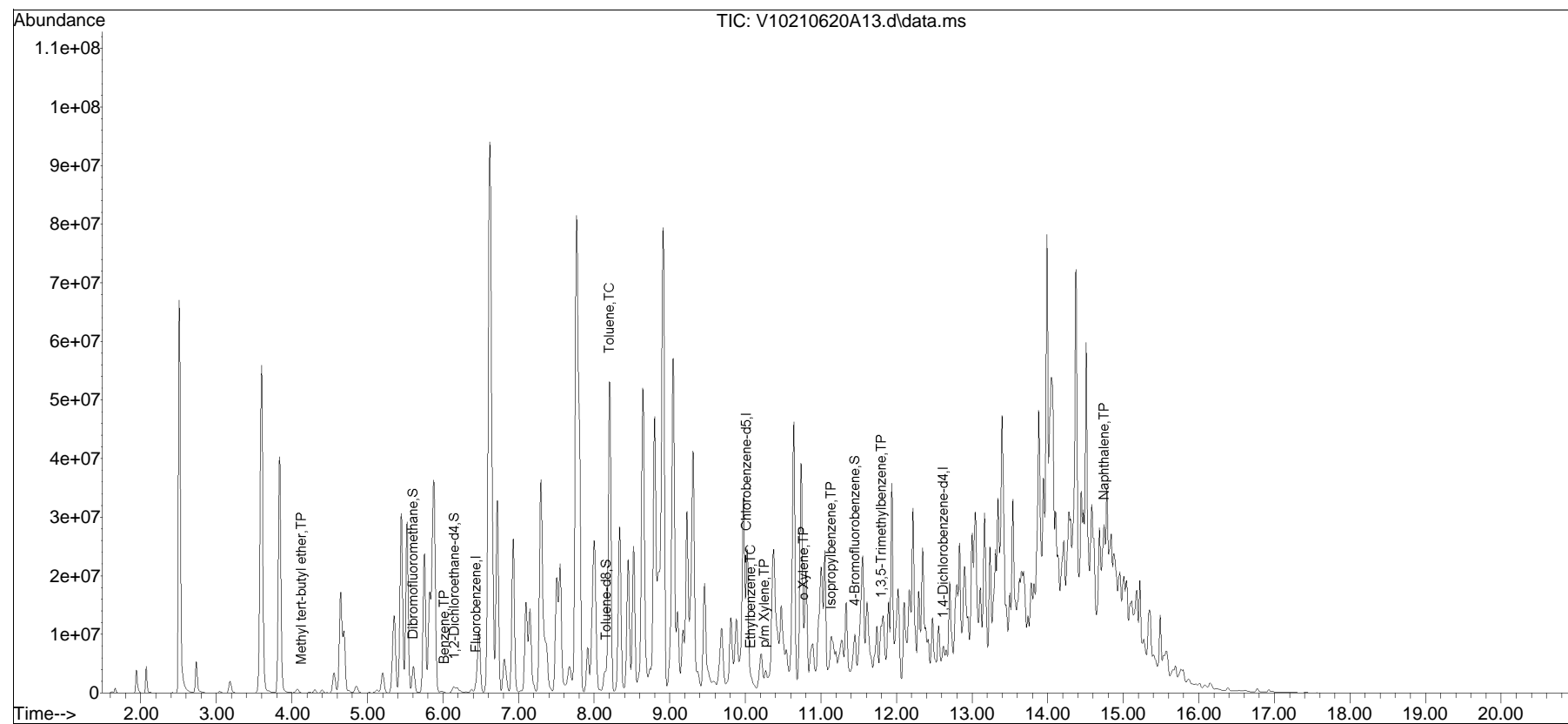


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A13.d
Acq On : 20 Jun 2021 5:21 pm
Operator : VOA110:JC
Sample : L2131595-10,31,6.43,5,,B
Misc : WG1514861,ICAL17863
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 21 06:52:03 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

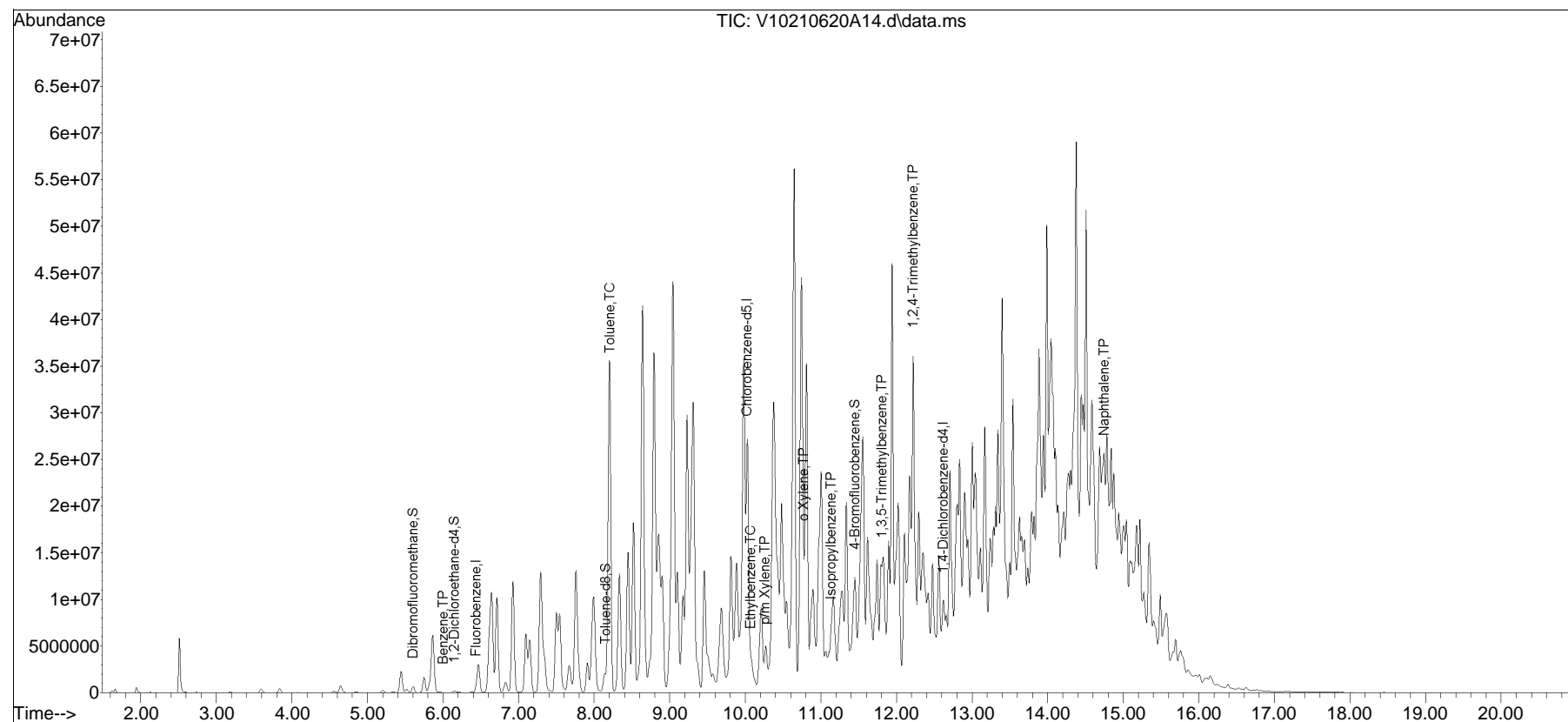


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A14.d
Acq On : 20 Jun 2021 5:48 pm
Operator : VOA110:JC
Sample : L2131595-11,31,6.13,5,,B
Misc : WG1514861,ICAL17863
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 21 06:52:22 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

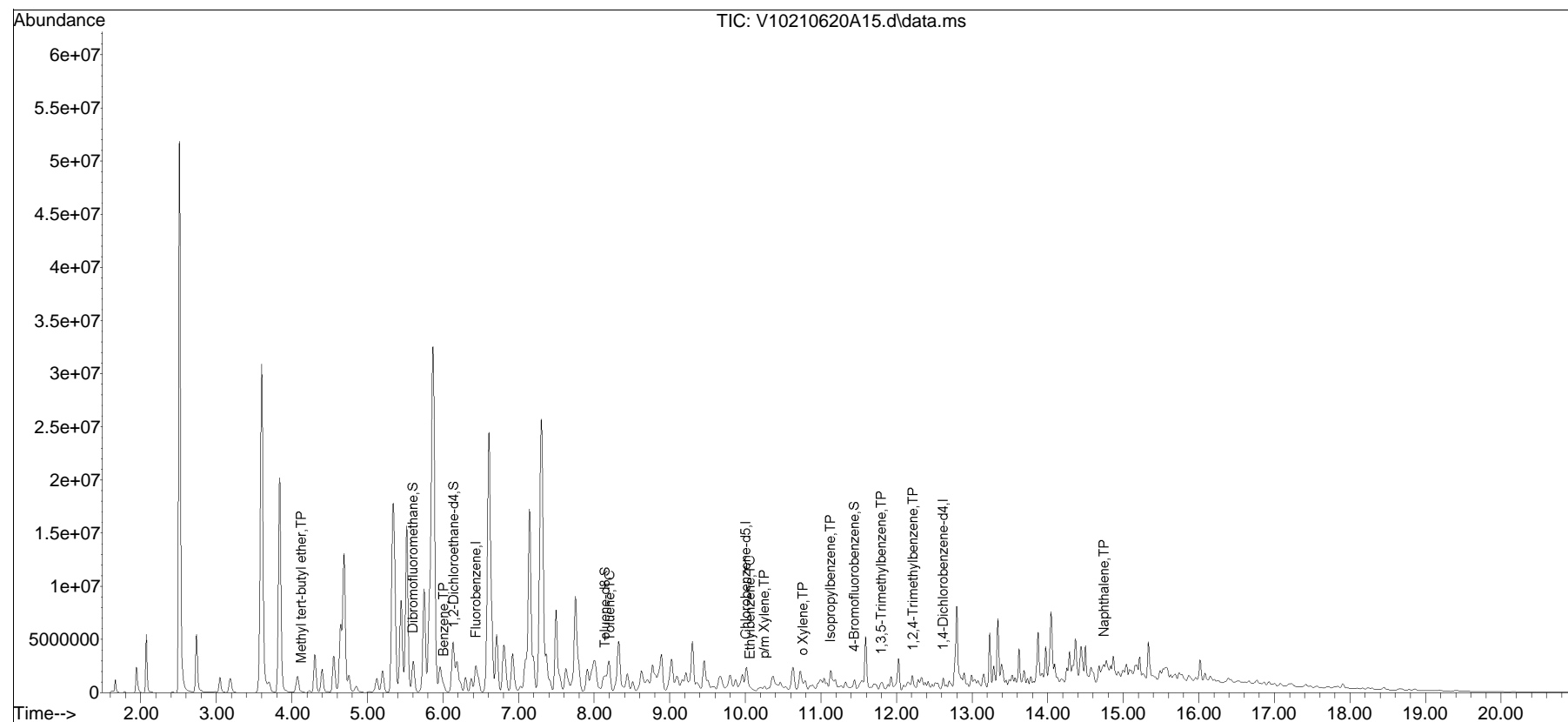


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
 Data File : V10210620A15.d
 Acq On : 20 Jun 2021 6:15 pm
 Operator : VOA110:JC
 Sample : L2131595-12,31,6.21,5,,B
 Misc : WG1514861,ICAL17863
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 21 06:52:59 2021
 Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Apr 21 12:58:31 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

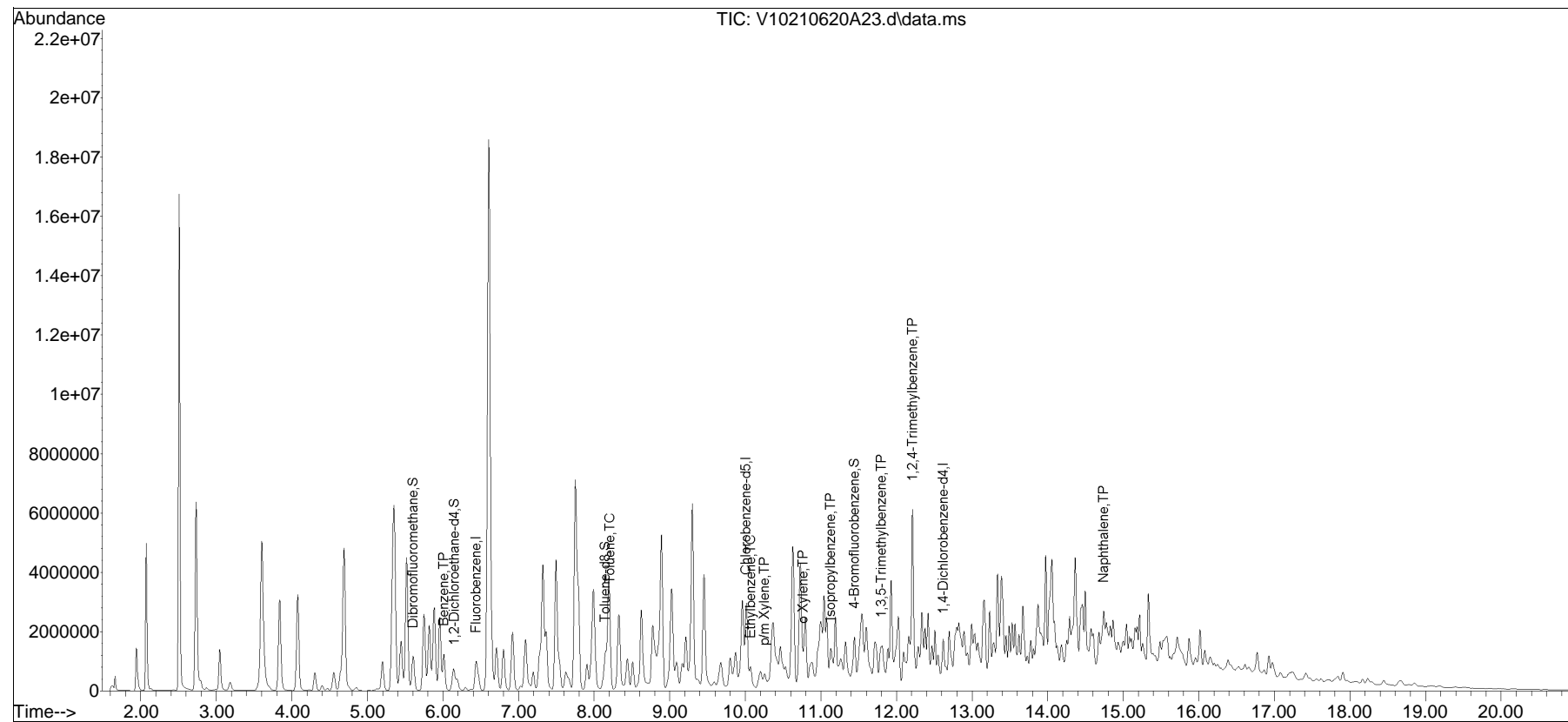


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A23.d
Acq On : 20 Jun 2021 9:54 pm
Operator : VOA110:JC
Sample : L2131595-14D,31H,6.64,5,0.010,,A
Misc : WG1514864,ICAL17863
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 21 06:58:13 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•





ANALYTICAL REPORT

Lab Number:	L2133575
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:	07/19/21

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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: L2133575

Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133575-01	PB34-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:35	06/21/21
L2133575-02	PB34-14-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:40	06/21/21
L2133575-03	PB35-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:45	06/21/21
L2133575-04	PB35-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:00	06/21/21
L2133575-05	PB35-08-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:05	06/21/21
L2133575-06	PB35-04-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:20	06/21/21
L2133575-07	PB35-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:30	06/21/21
L2133575-08	PB35-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:40	06/21/21
L2133575-09	PB35-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:50	06/21/21
L2133575-10	PB35-15-SS01	SOIL	PHILADELPHIA, PA	06/21/21 12:50	06/21/21
L2133575-11	PB35-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:00	06/21/21
L2133575-12	PB34-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:10	06/21/21
L2133575-13	PB34-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:20	06/21/21
L2133575-14	PB34-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:30	06/21/21
L2133575-15	PB34-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:40	06/21/21
L2133575-16	PB34-11-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:50	06/21/21
L2133575-17	PB34-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:00	06/21/21
L2133575-18	PB34-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:10	06/21/21
L2133575-19	PB40-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:25	06/21/21
L2133575-20	PB40-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:35	06/21/21
L2133575-21	DUP-7	SOIL	PHILADELPHIA, PA	06/21/21 14:45	06/21/21
L2133575-22	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/21/21
L2133575-23	FB-210621-1	WATER	PHILADELPHIA, PA	06/21/21 16:00	06/21/21
L2133575-24	FB-210621-2	WATER	PHILADELPHIA, PA	06/21/21 16:05	06/21/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

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: L2133575
Report Date: 07/19/21

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.

Sample Receipt

L2133575-19: The collection date and time on the chain of custody was 21-JUN-21 14:25; however, the collection date/time on the container label was 20-JUN-21 14:25. At the client's request, the collection date/time is reported as 21-JUN-21 14:25.

Volatile Organics

L2133575-01, -03, -07, -08, -10, -12, 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.

L2133575-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); 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.

L2133575-03: The surrogate recovery is outside the acceptance criteria for 4-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.

L2133575-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); 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.

L2133575-08: 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.

L2133575-09: The internal standard (IS) response for fluorobenzene (216%) and the surrogate recoveries for dibromofluoromethane (43%), toluene-d8 (170%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. A copy of the chromatogram is

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Case Narrative (continued)

included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2133575-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (198%); 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.

L2133575-11D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133575-11D and -15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (166%); 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.

L2133575-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); 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.

L2133575-13: The internal standard (IS) response for fluorobenzene (237%) and the surrogate recoveries for dibromofluoromethane (49%) and 4-bromofluorobenzene (187%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.

L2133575-14: 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.

L2133575-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); 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: L2133575
Report Date: 07/19/21

Case Narrative (continued)

Total Metals

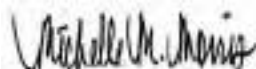
The WG1517780-3 MS recovery, performed on L2133575-01, is outside the acceptance criteria for lead (53%). A post digestion spike was performed and yielded an unacceptable recovery for lead (59%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1517780-4 Laboratory Duplicate RPD for lead (30%), performed on L2133575-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1517780-6 serial dilution analysis, associated with L2133575-01, had a %D above the acceptance criteria for lead (35%).

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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
 Client ID: PB34-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:35
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 20:06
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	1
Benzene	1.4		mg/kg	0.074	0.024	1
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	1
Toluene	0.76		mg/kg	0.15	0.080	1
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	1
Ethylbenzene	0.28		mg/kg	0.15	0.021	1
p/m-Xylene	1.5		mg/kg	0.29	0.082	1
o-Xylene	0.40		mg/kg	0.15	0.043	1
Xylenes, Total	1.9		mg/kg	0.15	0.043	1
Isopropylbenzene	3.6		mg/kg	0.15	0.016	1
1,3,5-Trimethylbenzene	0.17	J	mg/kg	0.29	0.028	1
1,2,4-Trimethylbenzene	0.84		mg/kg	0.29	0.049	1
Naphthalene	2.0		mg/kg	0.59	0.096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	211	Q	70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02
 Client ID: PB34-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:40
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 19:36
 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	0.00058	J	mg/kg	0.0018	0.00018	1
Benzene	0.0011		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.00014	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
Naphthalene	0.00062	J	mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	114		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03
 Client ID: PB35-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:45
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 20:33
 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	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.043	J	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	0.50		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.064	0.019	1
Xylenes, Total	0.62		mg/kg	0.064	0.019	1
Isopropylbenzene	1.3		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.049	J	mg/kg	0.13	0.021	1
Naphthalene	0.98		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	160	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04
 Client ID: PB35-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 20:03
 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	0.0021	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
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D2
 Client ID: PB35-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 08:48
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.89		mg/kg	0.070	0.023	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	10.		mg/kg	0.14	0.076	2.5
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	2.5
Ethylbenzene	12.		mg/kg	0.14	0.020	2.5
p/m-Xylene	46.		mg/kg	0.28	0.079	2.5
o-Xylene	8.4		mg/kg	0.14	0.041	2.5
Xylenes, Total	54.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	1.2		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	59.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.2		mg/kg	0.56	0.091	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D
 Client ID: PB35-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 21:00
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	50.		mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06
 Client ID: PB35-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:20
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 21:27
 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	0.41		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.89		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	7.9		mg/kg	0.059	0.0083	1
p/m-Xylene	34.		mg/kg	0.12	0.033	1
o-Xylene	5.8		mg/kg	0.059	0.017	1
Xylenes, Total	40.		mg/kg	0.059	0.017	1
Isopropylbenzene	0.80		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	10.		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.12	0.020	1
Naphthalene	5.2		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06 D
 Client ID: PB35-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:20
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 08:21
 Analyst: MKS
 Percent Solids: 82%

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	28.		mg/kg	0.59	0.098	5
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-07
 Client ID: PB35-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:30
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 21:54
 Analyst: JC
 Percent Solids: 81%

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
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.54		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.12	0.020	1
Naphthalene	0.094	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	131	Q	70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08
 Client ID: PB35-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:40
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 22:21
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	0.035	J	mg/kg	0.060	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	ND		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	1
Ethylbenzene	0.042	J	mg/kg	0.12	0.017	1
p/m-Xylene	0.21	J	mg/kg	0.24	0.068	1
o-Xylene	0.050	J	mg/kg	0.12	0.035	1
Xylenes, Total	0.26	J	mg/kg	0.12	0.035	1
Isopropylbenzene	2.3		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.24	0.040	1
Naphthalene	0.18	J	mg/kg	0.48	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	143	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
 Client ID: PB35-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 22:47
 Analyst: JC
 Percent Solids: 81%

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	0.032	J	mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.65		mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.25		mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.023	1
Naphthalene	0.045	J	mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
 Client ID: PB35-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 07:23
 Analyst: MV
 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	0.0085		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0048		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.40	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0058		mg/kg	0.0021	0.00058	1
o-Xylene	0.0016		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0074		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.21		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00073	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.0034	J	mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	170	Q	70-130
4-Bromofluorobenzene	702	Q	70-130
Dibromofluoromethane	43	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
 Client ID: PB35-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 12:50
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 09:42
 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	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.039	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.030	J	mg/kg	0.058	0.0082	1
p/m-Xylene	0.14		mg/kg	0.12	0.032	1
o-Xylene	0.13		mg/kg	0.058	0.017	1
Xylenes, Total	0.27		mg/kg	0.058	0.017	1
Isopropylbenzene	2.0		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.052	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.12	0.019	1
Naphthalene	0.40		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	198	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11 D
 Client ID: PB35-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/29/21 23:41
 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	0.24	0.024	2
Benzene	0.71		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	0.085	J	mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.10	J	mg/kg	0.12	0.017	2
p/m-Xylene	0.13	J	mg/kg	0.24	0.068	2
o-Xylene	0.18		mg/kg	0.12	0.035	2
Xylenes, Total	0.31	J	mg/kg	0.12	0.035	2
Isopropylbenzene	4.8		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.24	0.040	2
Naphthalene	0.88		mg/kg	0.48	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	166	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12
 Client ID: PB34-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:10
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 00:08
 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	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	ND		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	ND		mg/kg	0.059	0.0083	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.059	0.017	1
Xylenes, Total	ND		mg/kg	0.059	0.017	1
Isopropylbenzene	0.013	J	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
Naphthalene	0.12	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13
 Client ID: PB34-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:20
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 00:34
 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	0.14	0.014	1
Benzene	0.20		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	0.18		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.068	0.0095	1
p/m-Xylene	0.58		mg/kg	0.14	0.038	1
o-Xylene	0.096		mg/kg	0.068	0.020	1
Xylenes, Total	0.68		mg/kg	0.068	0.020	1
Isopropylbenzene	1.8		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.14	0.022	1
Naphthalene	1.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13
 Client ID: PB34-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:20
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 07:48
 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	0.00080	J	mg/kg	0.0025	0.00025	1
Benzene	0.0031		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0085		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.0046		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.023		mg/kg	0.0025	0.00070	1
o-Xylene	0.0060		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.029		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.13		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0050		mg/kg	0.0025	0.00042	1
Naphthalene	0.0050		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	187	Q	70-130
Dibromofluoromethane	49	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14
 Client ID: PB34-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:30
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 01:01
 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	0.10	0.010	1
Benzene	0.088		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	0.052		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.24		mg/kg	0.052	0.0074	1
p/m-Xylene	0.059	J	mg/kg	0.10	0.029	1
o-Xylene	0.090		mg/kg	0.052	0.015	1
Xylenes, Total	0.15	J	mg/kg	0.052	0.015	1
Isopropylbenzene	1.3		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	2.6		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	3.3		mg/kg	0.10	0.017	1
Naphthalene	0.42		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15
 Client ID: PB34-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:40
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 01:28
 Analyst: JC
 Percent Solids: 74%

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	ND		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	ND		mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.018	J	mg/kg	0.075	0.010	1
p/m-Xylene	ND		mg/kg	0.15	0.042	1
o-Xylene	ND		mg/kg	0.075	0.022	1
Xylenes, Total	ND		mg/kg	0.075	0.022	1
Isopropylbenzene	0.74		mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.050	J	mg/kg	0.15	0.025	1
Naphthalene	0.71		mg/kg	0.30	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	166	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16
 Client ID: PB34-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:50
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 01:54
 Analyst: JC
 Percent Solids: 77%

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	4.1		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	2.3		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	13.		mg/kg	0.068	0.0095	1
p/m-Xylene	60.	E	mg/kg	0.14	0.038	1
o-Xylene	8.4		mg/kg	0.068	0.020	1
Isopropylbenzene	0.24		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	4.5		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.14	0.023	1
Naphthalene	3.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16 D
 Client ID: PB34-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:50
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 09:15
 Analyst: MKS
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	51.		mg/kg	0.27	0.076	2
Xylenes, Total	59.		mg/kg	0.068	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-17
 Client ID: PB34-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 01:48
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0037	0.00037	1
Benzene	0.0040		mg/kg	0.00093	0.00031	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00048	1
Toluene	0.0013	J	mg/kg	0.0018	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00093	0.00054	1
Ethylbenzene	0.00068	J	mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0037	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00054	1
Xylenes, Total	ND		mg/kg	0.0018	0.00054	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0037	0.00036	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0037	0.00062	1
Naphthalene	ND		mg/kg	0.0074	0.0012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	171	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18
 Client ID: PB34-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:10
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 02:21
 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	0.31		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.12		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	4.1		mg/kg	0.059	0.0083	1
p/m-Xylene	2.9		mg/kg	0.12	0.033	1
o-Xylene	0.59		mg/kg	0.059	0.017	1
Xylenes, Total	3.5		mg/kg	0.059	0.017	1
Isopropylbenzene	0.61		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.8		mg/kg	0.12	0.020	1
Naphthalene	1.7		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
 Client ID: PB40-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:25
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 02:13
 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	0.00048	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	0.0024		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
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20
Client ID: PB40-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:38
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	0.0016	0.00016	1
Benzene	0.0027		mg/kg	0.00041	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00082	0.00021	1
Toluene	ND		mg/kg	0.00082	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00041	0.00024	1
Ethylbenzene	0.00020	J	mg/kg	0.00082	0.00012	1
p/m-Xylene	0.00069	J	mg/kg	0.0016	0.00046	1
o-Xylene	ND		mg/kg	0.00082	0.00024	1
Xylenes, Total	0.00069	J	mg/kg	0.00082	0.00024	1
Isopropylbenzene	0.00020	J	mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.00030	J	mg/kg	0.0016	0.00027	1
Naphthalene	0.00053	J	mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21
 Client ID: DUP-7
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:45
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 02:47
 Analyst: JC
 Percent Solids: 88%

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	0.43		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.037	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	1.3		mg/kg	0.058	0.0082	1
p/m-Xylene	1.6		mg/kg	0.12	0.032	1
o-Xylene	0.047	J	mg/kg	0.058	0.017	1
Xylenes, Total	1.6	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.22		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.22		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.12	0.019	1
Naphthalene	1.9		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-22
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 11:22
 Analyst: NLK

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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-23
 Client ID: FB-210621-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/25/21 15:45
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/25/21 13:23

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: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-23
 Client ID: FB-210621-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:00
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 16:16
 Analyst: AJK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24
 Client ID: FB-210621-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:05
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/25/21 15:51
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/25/21 13:23

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: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24
 Client ID: FB-210621-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:05
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 16:39
 Analyst: AJK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06,10,16 Batch: WG1518719-10					
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	0.0090	J	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	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:39
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-5					
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	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:09
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04 Batch: WG1518777-5					
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	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/29/21 18:11
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,19-20 Batch: WG1518837-5					
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	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,13 Batch: WG1518909-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/02/21 08:56
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-24 Batch: WG1519961-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		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: L2133575

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-3 WG1518719-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	90		89		70-130	1		30
1,2-Dichloroethane	92		93		70-130	1		30
Toluene	88		86		70-130	2		30
1,2-Dibromoethane	99		101		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	89		90		70-130	1		30
Isopropylbenzene	89		87		70-130	2		30
1,3,5-Trimethylbenzene	89		87		70-130	2		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	94		96		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	99		101		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06,10,16 Batch: WG1518719-8 WG1518719-9									
Methyl tert butyl ether	92		90		66-130		2		30
Benzene	85		81		70-130		5		30
1,2-Dichloroethane	91		88		70-130		3		30
Toluene	84		80		70-130		5		30
1,2-Dibromoethane	97		99		70-130		2		30
Ethylbenzene	85		82		70-130		4		30
p/m-Xylene	85		82		70-130		4		30
o-Xylene	84		82		70-130		2		30
Isopropylbenzene	89		84		70-130		6		30
1,3,5-Trimethylbenzene	88		82		70-130		7		30
1,2,4-Trimethylbenzene	86		81		70-130		6		30
Naphthalene	94		94		70-130		0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	99		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04 Batch: WG1518777-3 WG1518777-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	100		102		70-130	2		30
1,2-Dichloroethane	90		92		70-130	2		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	99		99		70-130	0		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	96		96		70-130	0		30
o-Xylene	98		95		70-130	3		30
Isopropylbenzene	97		96		70-130	1		30
1,3,5-Trimethylbenzene	99		97		70-130	2		30
1,2,4-Trimethylbenzene	100		98		70-130	2		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		90		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	107		109		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,19-20 Batch: WG1518837-3 WG1518837-4								
Methyl tert butyl ether	89		88		66-130	1		30
Benzene	84		82		70-130	2		30
1,2-Dichloroethane	97		95		70-130	2		30
Toluene	96		93		70-130	3		30
1,2-Dibromoethane	95		94		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	109		108		70-130	1		30
1,3,5-Trimethylbenzene	109		110		70-130	1		30
1,2,4-Trimethylbenzene	108		108		70-130	0		30
Naphthalene	96		94		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	111		113		70-130
Toluene-d8	108		106		70-130
4-Bromofluorobenzene	113		116		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,13 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-24 Batch: WG1519961-3 WG1519961-4								
Methyl tert butyl ether	96		97		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	96		98		70-130	2		20
Ethylbenzene	98		98		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		97		70-130	2		20
1,3,5-Trimethylbenzene	93		96		64-130	3		20
1,2,4-Trimethylbenzene	93		94		70-130	1		20
Naphthalene	85		93		70-130	9		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	103		103		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
 Client ID: PB34-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:35
 Date Received: 06/21/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	66.2		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 19:36	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02

Date Collected: 06/21/21 10:40

Client ID: PB34-14-SS01

Date Received: 06/21/21

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	144		mg/kg	2.17	0.116	1	06/28/21 23:57	07/14/21 20:05	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03

Date Collected: 06/21/21 10:45

Client ID: PB35-05-SS01

Date Received: 06/21/21

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	84.4		mg/kg	2.26	0.121	1	06/28/21 23:57	07/14/21 20:10	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04

Date Collected: 06/21/21 11:00

Client ID: PB35-03-SS01

Date Received: 06/21/21

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	417		mg/kg	2.16	0.116	1	06/28/21 23:57	07/14/21 20:14	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05

Date Collected: 06/21/21 11:05

Client ID: PB35-08-SS01

Date Received: 06/21/21

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	7.41		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:18	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06

Date Collected: 06/21/21 11:20

Client ID: PB35-04-SS01

Date Received: 06/21/21

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	8.32		mg/kg	2.41	0.129	1	06/28/21 23:57	07/14/21 20:23	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-07
 Client ID: PB35-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:30
 Date Received: 06/21/21
 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	6.32		mg/kg	2.45	0.132	1	06/28/21 23:57	07/14/21 20:27	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08

Date Collected: 06/21/21 11:40

Client ID: PB35-01-SS01

Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	2.46	0.132	1	06/28/21 23:57	07/14/21 20:31	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09

Date Collected: 06/21/21 11:50

Client ID: PB35-07-SS01

Date Received: 06/21/21

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	7.54		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:44	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
 Client ID: PB35-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 12:50
 Date Received: 06/21/21
 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	7.62		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 20:48	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11
 Client ID: PB35-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:00
 Date Received: 06/21/21
 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	6.73		mg/kg	2.40	0.128	1	06/28/21 23:57	07/14/21 20:53	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12

Date Collected: 06/21/21 13:10

Client ID: PB34-06-SS01

Date Received: 06/21/21

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	6.84		mg/kg	2.24	0.120	1	06/28/21 23:57	07/14/21 20:57	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133575-13

Date Collected: 06/21/21 13:20

Client ID: PB34-05-SS01

Date Received: 06/21/21

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	244		mg/kg	2.27	0.122	1	06/28/21 23:57	07/14/21 21:02	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14

Date Collected: 06/21/21 13:30

Client ID: PB34-03-SS01

Date Received: 06/21/21

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	1330		mg/kg	2.25	0.121	1	06/28/21 23:57	07/14/21 21:06	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15

Date Collected: 06/21/21 13:40

Client ID: PB34-07-SS01

Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	124		mg/kg	2.70	0.145	1	06/28/21 23:57	07/14/21 21:10	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16

Date Collected: 06/21/21 13:50

Client ID: PB34-11-SS01

Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	34.8		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 21:14	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-17

Date Collected: 06/21/21 14:00

Client ID: PB34-01-SS01

Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	177		mg/kg	2.55	0.137	1	06/28/21 23:57	07/14/21 21:19	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18

Date Collected: 06/21/21 14:10

Client ID: PB34-02-SS01

Date Received: 06/21/21

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	20.0		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 21:23	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19

Date Collected: 06/21/21 14:25

Client ID: PB40-05-SS01

Date Received: 06/21/21

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	355		mg/kg	2.19	0.117	1	06/28/21 23:57	07/14/21 21:36	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20

Date Collected: 06/21/21 14:35

Client ID: PB40-06-SS01

Date Received: 06/21/21

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	247		mg/kg	2.32	0.124	1	06/28/21 23:57	07/14/21 21:40	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21

Date Collected: 06/21/21 14:45

Client ID: DUP-7

Date Received: 06/21/21

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	29.8		mg/kg	2.20	0.118	1	06/29/21 09:00	07/13/21 20:00	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-23

Date Collected: 06/21/21 16:00

Client ID: FB-210621-1

Date Received: 06/21/21

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	06/24/21 06:44	07/15/21 19:47	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24

Date Collected: 06/21/21 16:05

Client ID: FB-210621-2

Date Received: 06/21/21

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	06/24/21 06:44	07/15/21 19:51	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

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): 23-24 Batch: WG1515564-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/24/21 06:44	07/12/21 14:00	1,6020B	CD

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): 01-20 Batch: WG1517780-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/28/21 23:57	07/14/21 19:02	1,6010D	SV

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 Batch: WG1517946-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/29/21 09:00	07/13/21 16:48	1,6010D	SV

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: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1515564-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1517780-2 SRM Lot Number: D109-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21 Batch: WG1517946-2 SRM Lot Number: D109-540								
Lead, Total	97		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

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): 23-24 QC Batch ID: WG1515564-3 QC Sample: L2133576-07 Client ID: MS Sample												
Lead, Total	8.680	530	543.0	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-3 QC Sample: L2133575-01 Client ID: PB34-12-SS01												
Lead, Total	66.2	53.1	94.5	53	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-3 QC Sample: L2134264-01 Client ID: MS Sample												
Lead, Total	11.0	51.7	55.2	85		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133575

Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-4 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	49.0	mg/kg	30	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-4 QC Sample: L2134264-01 Client ID: DUP Sample						
Lead, Total	11.0	9.52	mg/kg	14		20

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2133575

Report Date: 07/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-6 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	89.1	mg/kg	35	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
 Client ID: PB34-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:35
 Date Received: 06/21/21
 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	75.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02

Date Collected: 06/21/21 10:40

Client ID: PB34-14-SS01

Date Received: 06/21/21

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	86.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03

Date Collected: 06/21/21 10:45

Client ID: PB35-05-SS01

Date Received: 06/21/21

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	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04

Date Collected: 06/21/21 11:00

Client ID: PB35-03-SS01

Date Received: 06/21/21

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	86.2		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05

Date Collected: 06/21/21 11:05

Client ID: PB35-08-SS01

Date Received: 06/21/21

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	81.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06
Client ID: PB35-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:20
Date Received: 06/21/21
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	82.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-07

Date Collected: 06/21/21 11:30

Client ID: PB35-02-SS01

Date Received: 06/21/21

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	81.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08

Date Collected: 06/21/21 11:40

Client ID: PB35-01-SS01

Date Received: 06/21/21

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	76.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
Date Received: 06/21/21
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	80.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
 Client ID: PB35-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 12:50
 Date Received: 06/21/21
 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	82.9		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11

Date Collected: 06/21/21 13:00

Client ID: PB35-12-SS01

Date Received: 06/21/21

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	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12

Date Collected: 06/21/21 13:10

Client ID: PB34-06-SS01

Date Received: 06/21/21

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	83.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13

Date Collected: 06/21/21 13:20

Client ID: PB34-05-SS01

Date Received: 06/21/21

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	83.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133575-14

Date Collected: 06/21/21 13:30

Client ID: PB34-03-SS01

Date Received: 06/21/21

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	83.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15

Date Collected: 06/21/21 13:40

Client ID: PB34-07-SS01

Date Received: 06/21/21

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	73.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16

Date Collected: 06/21/21 13:50

Client ID: PB34-11-SS01

Date Received: 06/21/21

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	76.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133575-17

Date Collected: 06/21/21 14:00

Client ID: PB34-01-SS01

Date Received: 06/21/21

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	73.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18

Date Collected: 06/21/21 14:10

Client ID: PB34-02-SS01

Date Received: 06/21/21

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	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133575-19

Date Collected: 06/21/21 14:25

Client ID: PB40-05-SS01

Date Received: 06/21/21

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	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133575-20

Date Collected: 06/21/21 14:35

Client ID: PB40-06-SS01

Date Received: 06/21/21

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	83.5		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21

Date Collected: 06/21/21 14:45

Client ID: DUP-7

Date Received: 06/21/21

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	87.6		%	0.100	NA	1	-	06/22/21 12:18	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133575

Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1515199-1 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Solids, Total	75.6	75.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515283-1 QC Sample: L2132596-01 Client ID: DUP Sample						
Solids, Total	26.6	25.5	%	4		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**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(*)
L2133575-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-01B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-01E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-02B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-02E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-03B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-03E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-04B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-04E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-05B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-05C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-05E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-06B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-06E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-07A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-07B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-07E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-08B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-08E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-09A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-09B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-09E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-10A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-10B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-10E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-11A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-11B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-11E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-12A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-12B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-12E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-13A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-13B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-13E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-14A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-14B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-14E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-15A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-15B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-15E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-16A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-16B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-16C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-16E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-17A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-17B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-17E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-18A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-18B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-18E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-19A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-19B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-19E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-20A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-20B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-20E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-21A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-21B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-21E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-22A	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133575**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-22B	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)
L2133575-23A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133575-24A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

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: L2133575
Report Date: 07/19/21

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: L2133575
Report Date: 07/19/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133575

Project Number: 200.00135.005.03

Report Date: 07/19/21

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-Terpeneol

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-Terpeneol; 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: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

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

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

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		

33575 -01	PB34-12-5501	6/21	1035	S	TS
-02	PB34-14-5501	6/21	1040	S	TS
-03	PB35-05-5501		1045		
-04	PB35-03-5501		1100		
-05	PB35-08-5501		1105		
-06	PB35-04-5501		1120		
-07	PB35-02-5501		1130		
-08	PB35-01-5501		1140		
-09	PB35-07-5501		1150		
-10	PB35-15-5501		1250		

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

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

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: PADEP Storage Tank 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
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SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type

Preservative

Relinquished By: [Signature]
Date/Time: 6/21/21 1615
John DAL 6/22/21 0215

Received By: [Signature]
Date/Time: 6/21/21 1615
John DAL 6/21/21 22:00
6/22/21 0215

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 #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3268

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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

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
 PADEP Storage Tank Program

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
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SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do Preservation
 Lab to do (Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
33875 -11	PB35-12-5501	6/21	1300	S	TS
-12	PB35-06-5501		1310		
-13	PB34-05-5501		1320		
-14	PB34-03-5501		1330		
-15	PB34-07-5501		1340		
-16	PB34-11-5501		1350		
-17	PB34-01-5501		1400		
-18	PB34-02-5501		1410		
-19	PB40-05-5501		1425		
-20	PB40-06-5501		1435		

Container Type
 Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/21 1615	<i>[Signature]</i>	6/21 1615
<i>[Signature]</i>	6/21 1800	<i>[Signature]</i>	6/21 1800
<i>[Signature]</i>	6/21 2020	<i>[Signature]</i>	6/21/21 22:00

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.

PADEP Short List Analytical List:

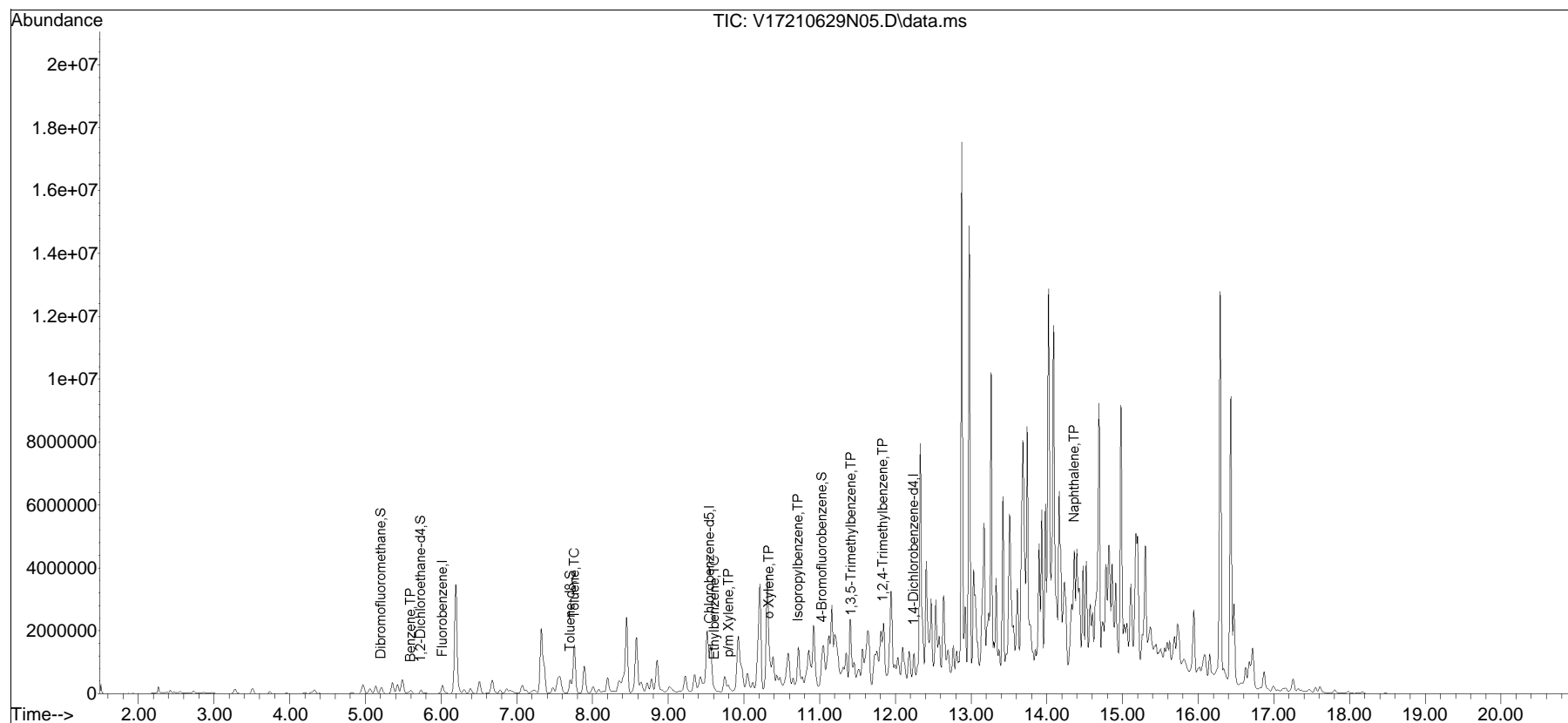
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA117\2021\210629N\
Data File : V17210629N05.D
Acq On : 29 Jun 2021 08:06 pm
Operator : VOA117:JC
Sample : L2133575-01,31H,2.52,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 30 06:09:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

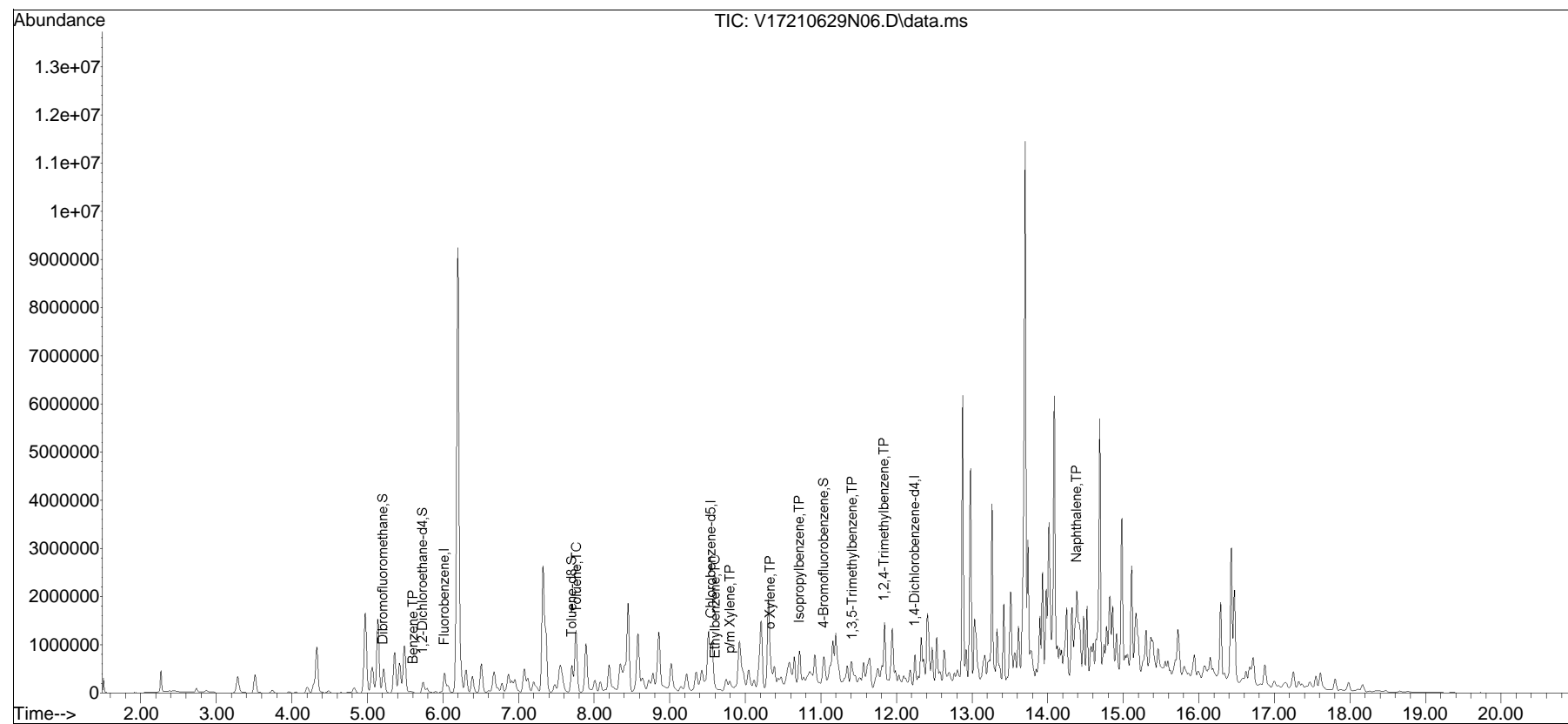


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
 Data File : V17210629N06.D
 Acq On : 29 Jun 2021 08:33 pm
 Operator : VOA117:JC
 Sample : L2133575-03,31H,5.67,5,0.100,,A
 Misc : WG1518719,ICAL18099
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 30 06:10:09 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

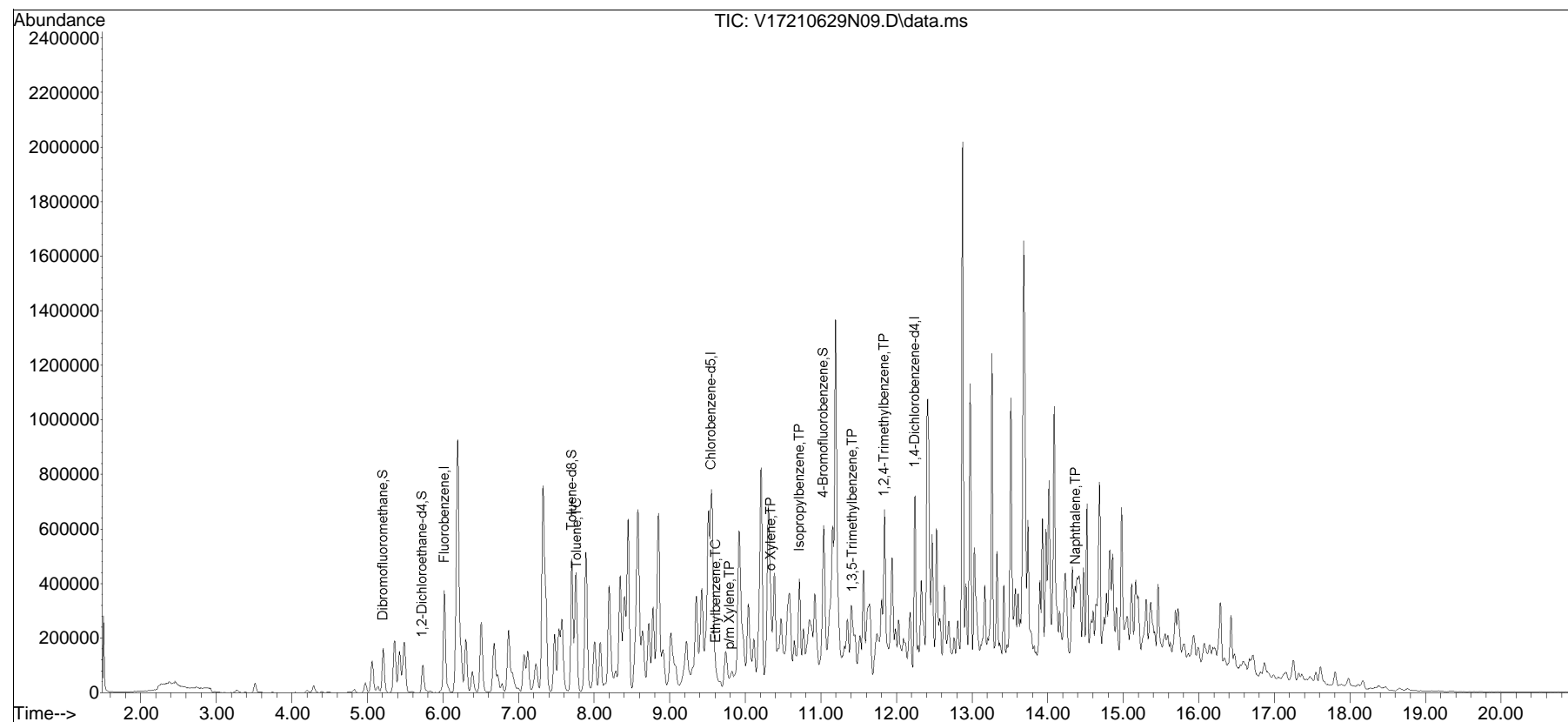


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
 Data File : V17210629N09.D
 Acq On : 29 Jun 2021 09:54 pm
 Operator : VOA117:JC
 Sample : L2133575-07,31H,6.40,5,0.100,,A
 Misc : WG1518719,ICAL18099
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 30 06:11:51 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

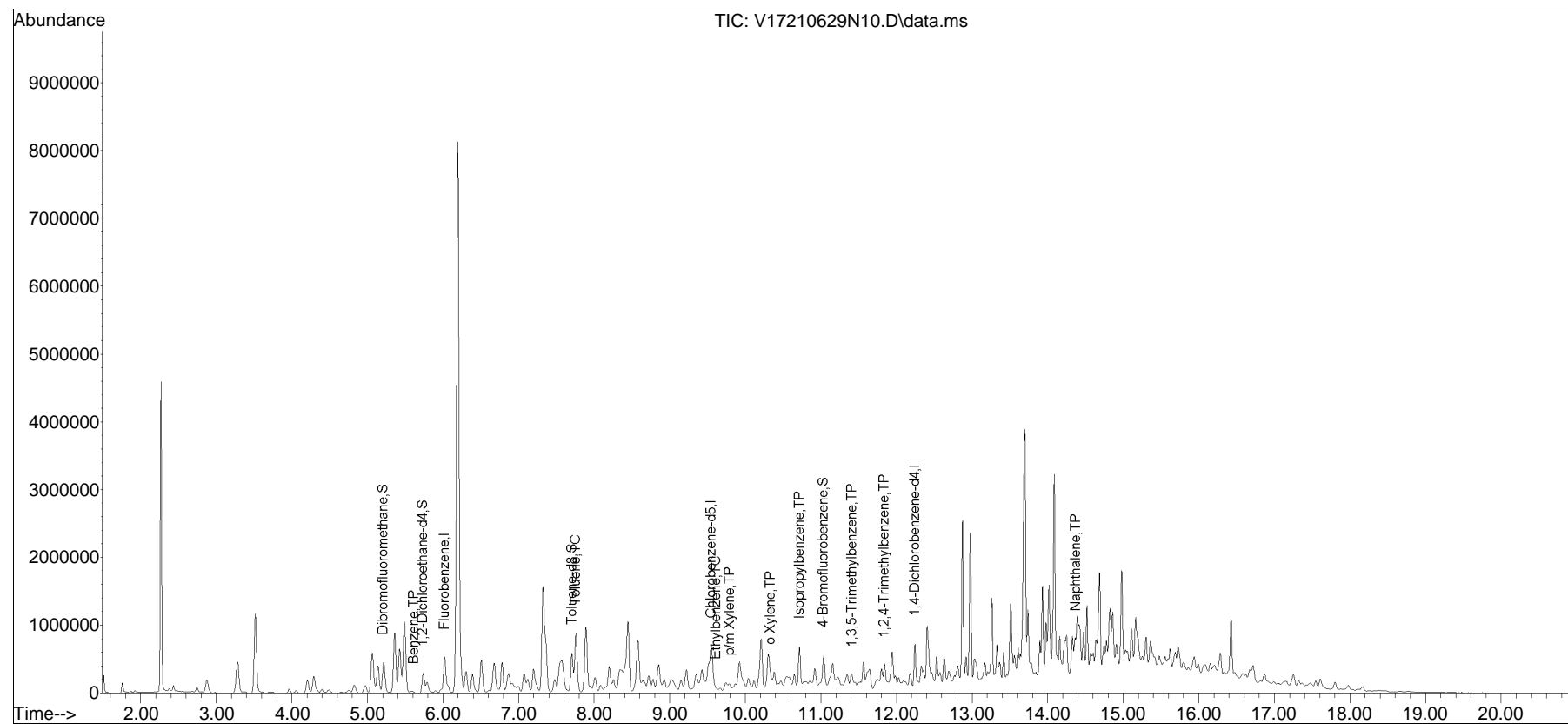


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N10.D
Acq On : 29 Jun 2021 10:21 pm
Operator : VOA117:JC
Sample : L2133575-08,31H,3.12,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 30 06:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

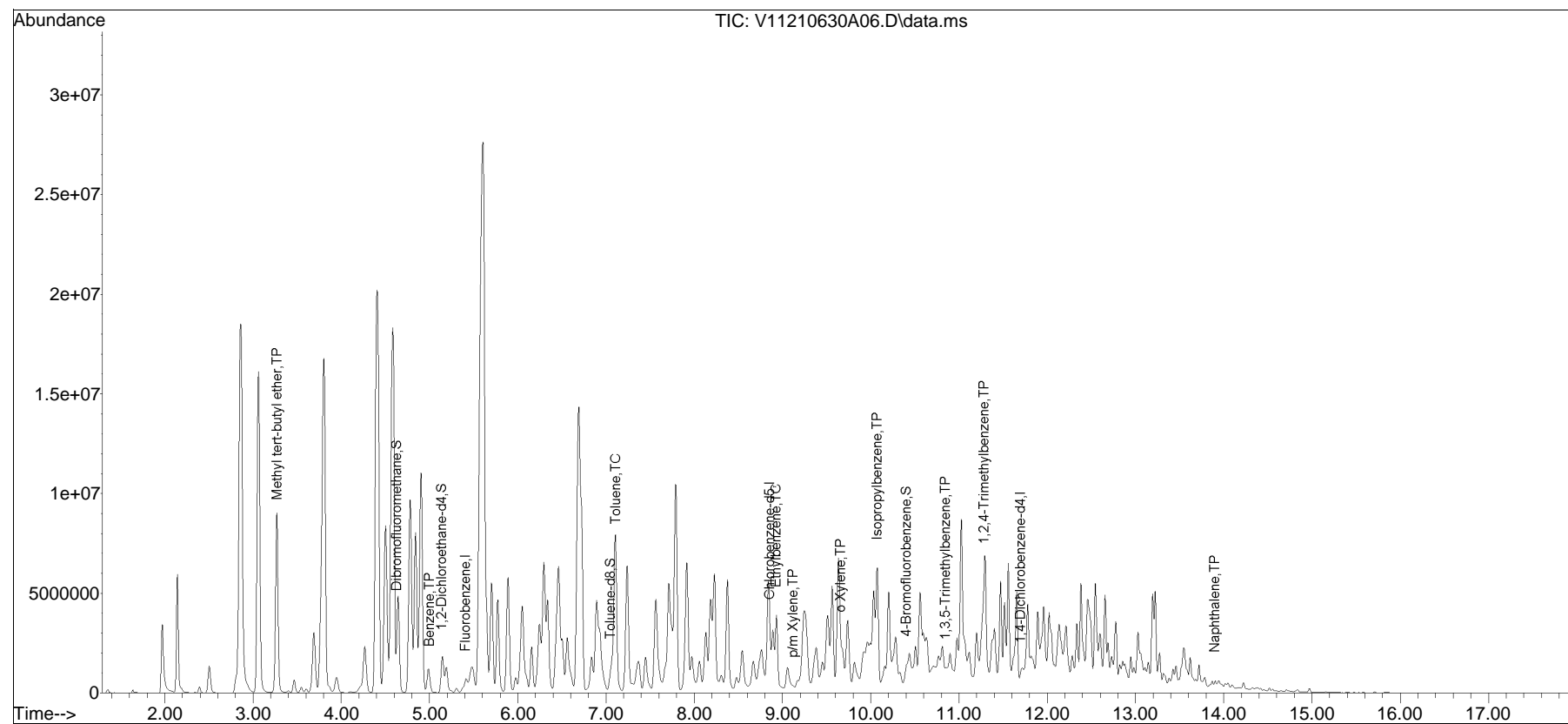


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A06.D
Acq On : 30 Jun 2021 07:23 am
Operator : VOA111:MV
Sample : L2133575-09,31,6.00,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 30 11:00:54 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

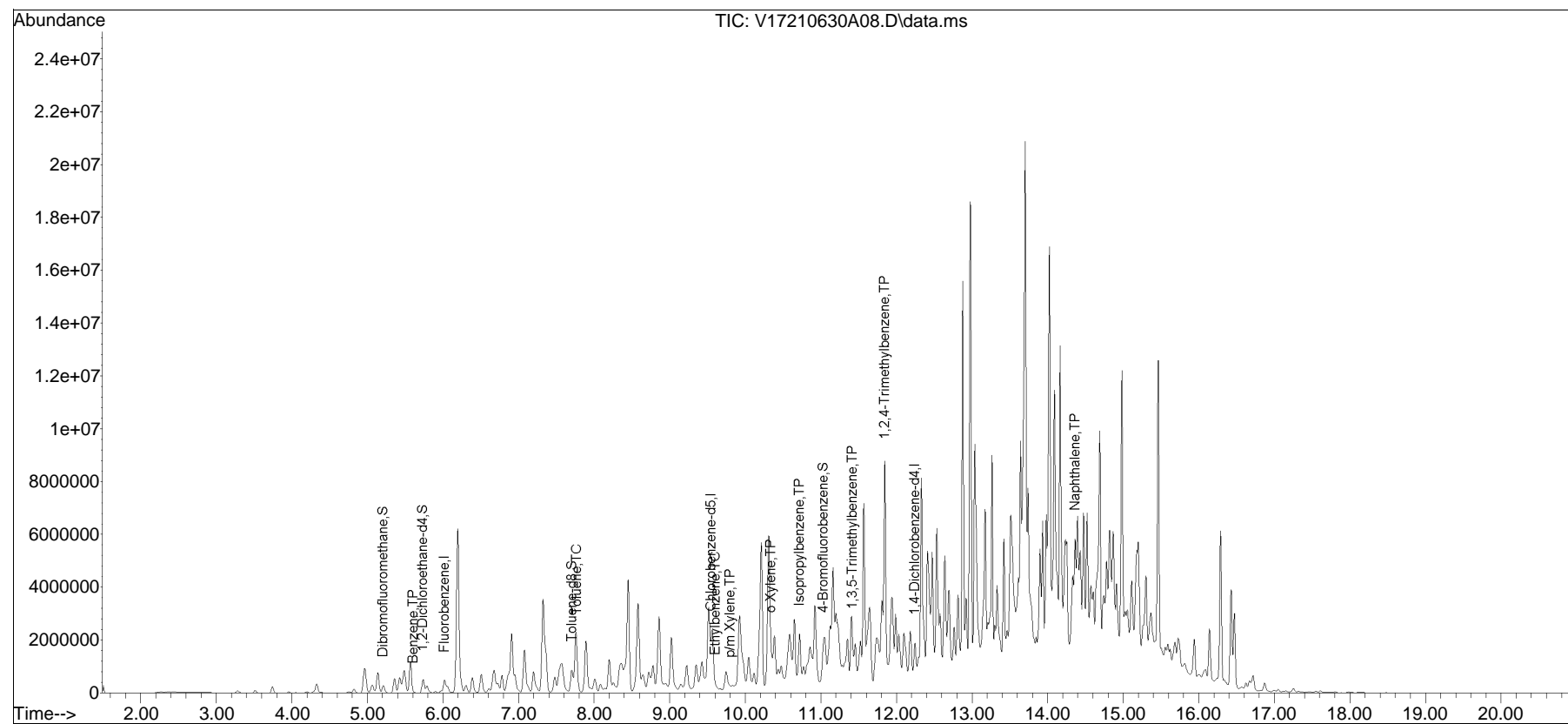


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210630A\
 Data File : V17210630A08.D
 Acq On : 30 Jun 2021 09:42 am
 Operator : VOA117:MKS
 Sample : L2133575-10,31H,6.35,5,0.100,,A
 Misc : WG1518719,ICAL18099
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 30 13:47:47 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210630A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V17210630A01.D•

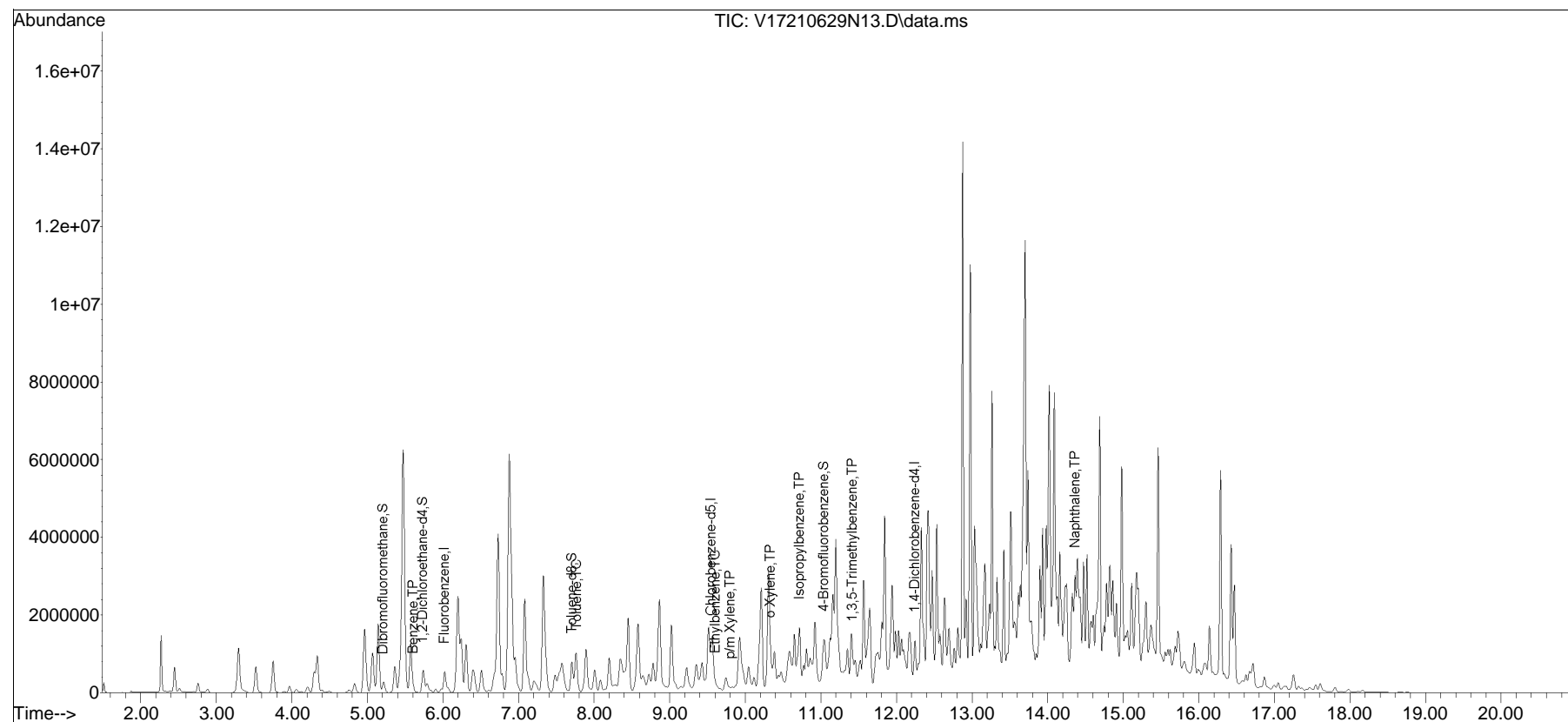


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
 Data File : V17210629N13.D
 Acq On : 29 Jun 2021 11:41 pm
 Operator : VOA117:JC
 Sample : L2133575-11D,31H,6.11,5,0.050,,A
 Misc : WG1518719,ICAL18099
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 30 06:15:22 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

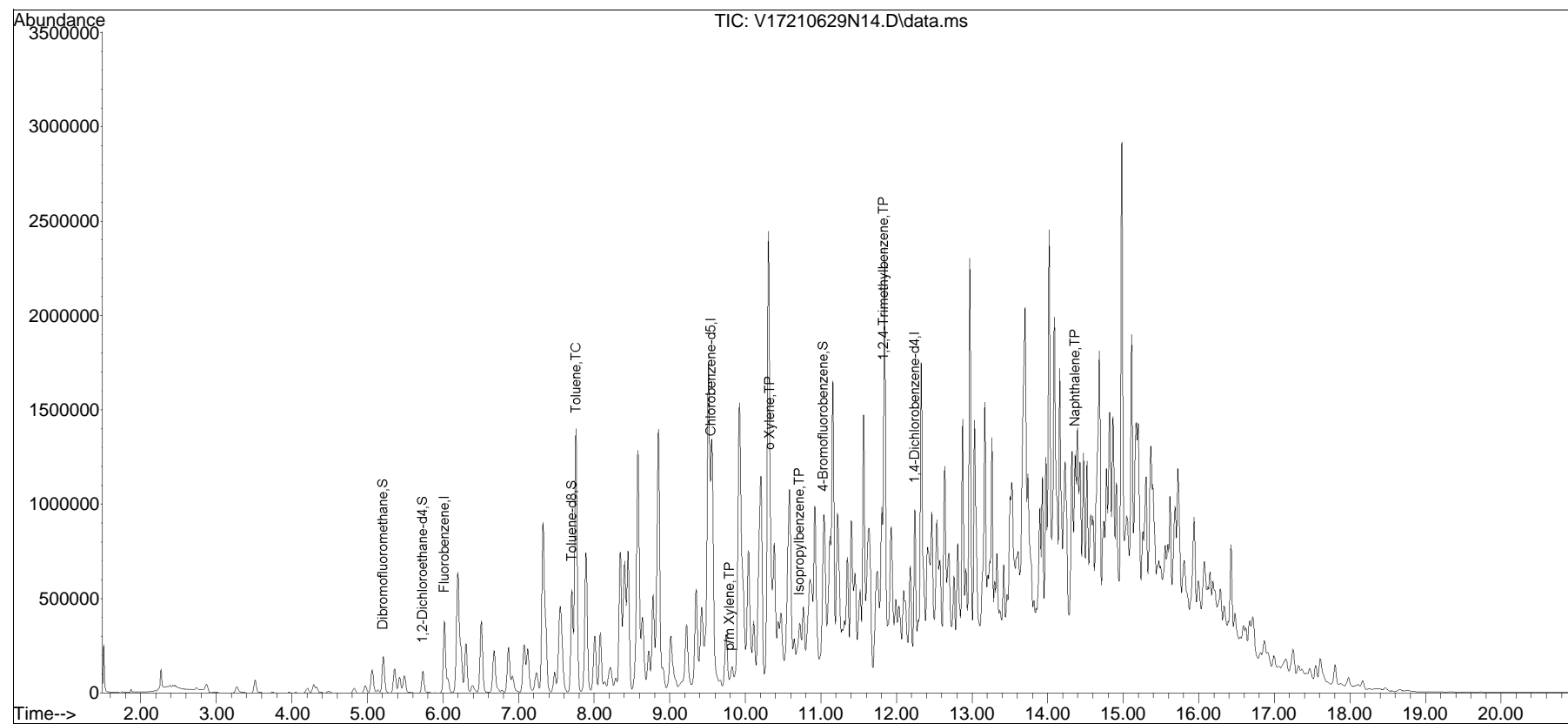


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N14.D
Acq On : 30 Jun 2021 12:08 am
Operator : VOA117:JC
Sample : L2133575-12,31H,6.19,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 30 06:15:35 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

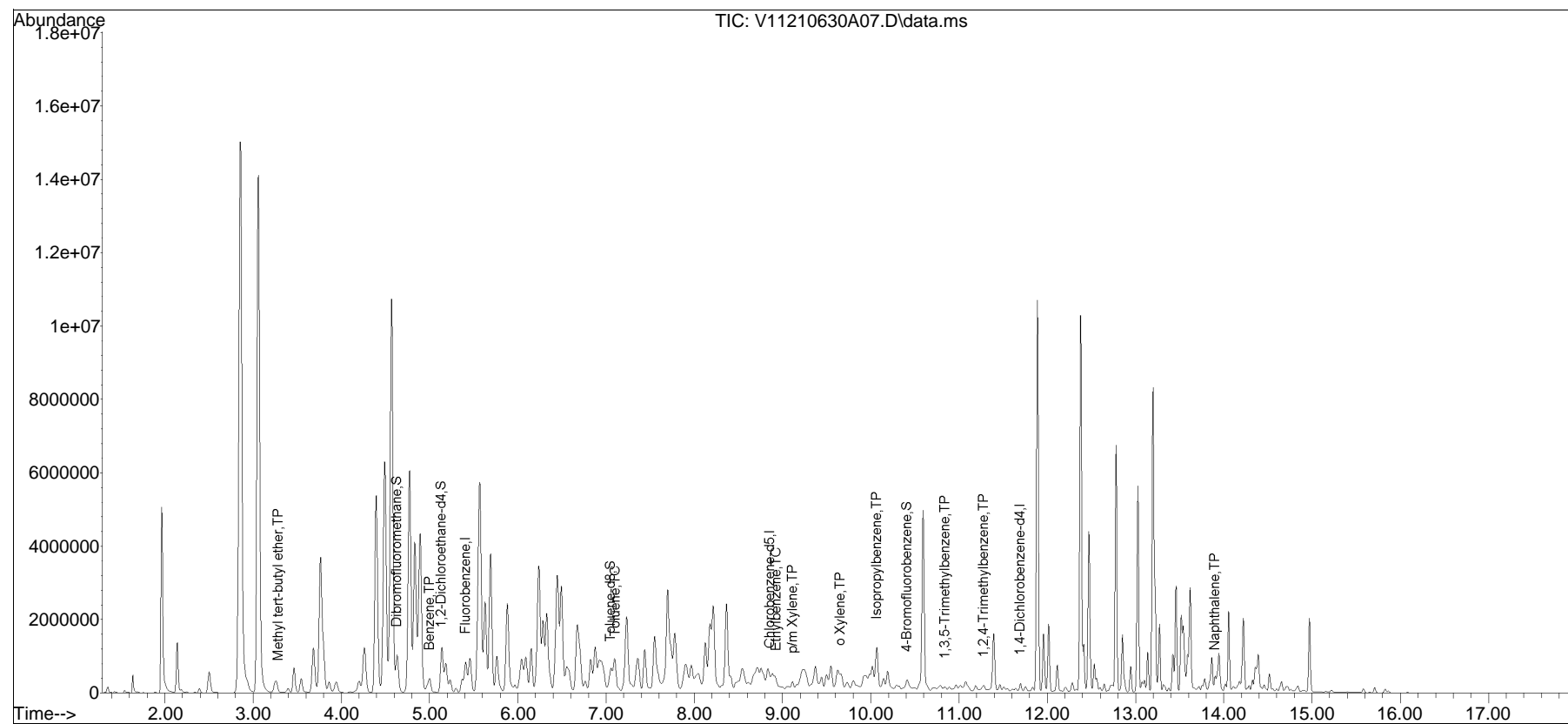


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A07.D
Acq On : 30 Jun 2021 07:48 am
Operator : VOA111:MV
Sample : L2133575-13,31,4.76,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 30 11:01:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

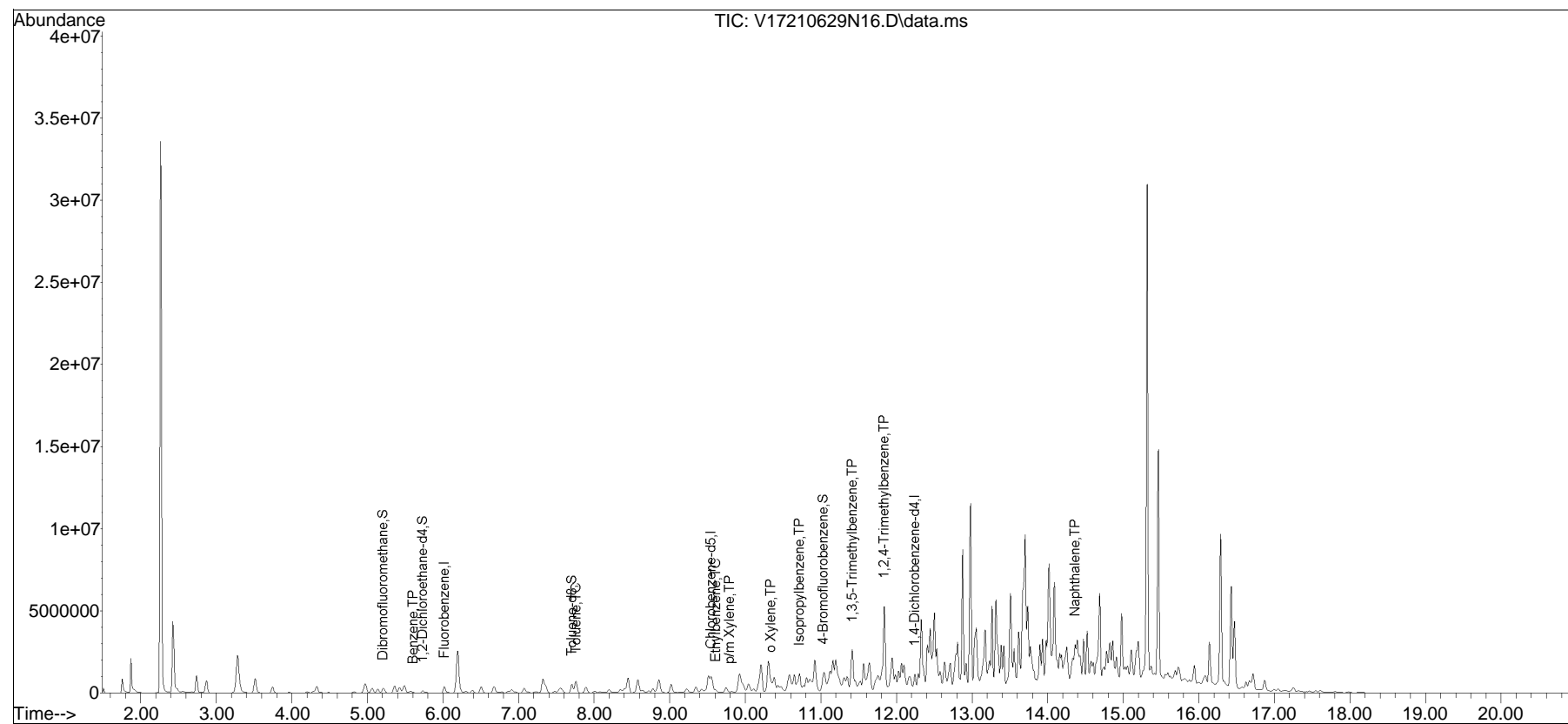


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N16.D
Acq On : 30 Jun 2021 01:01 am
Operator : VOA117:JC
Sample : L2133575-14,31H,7.15,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 30 06:02:10 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

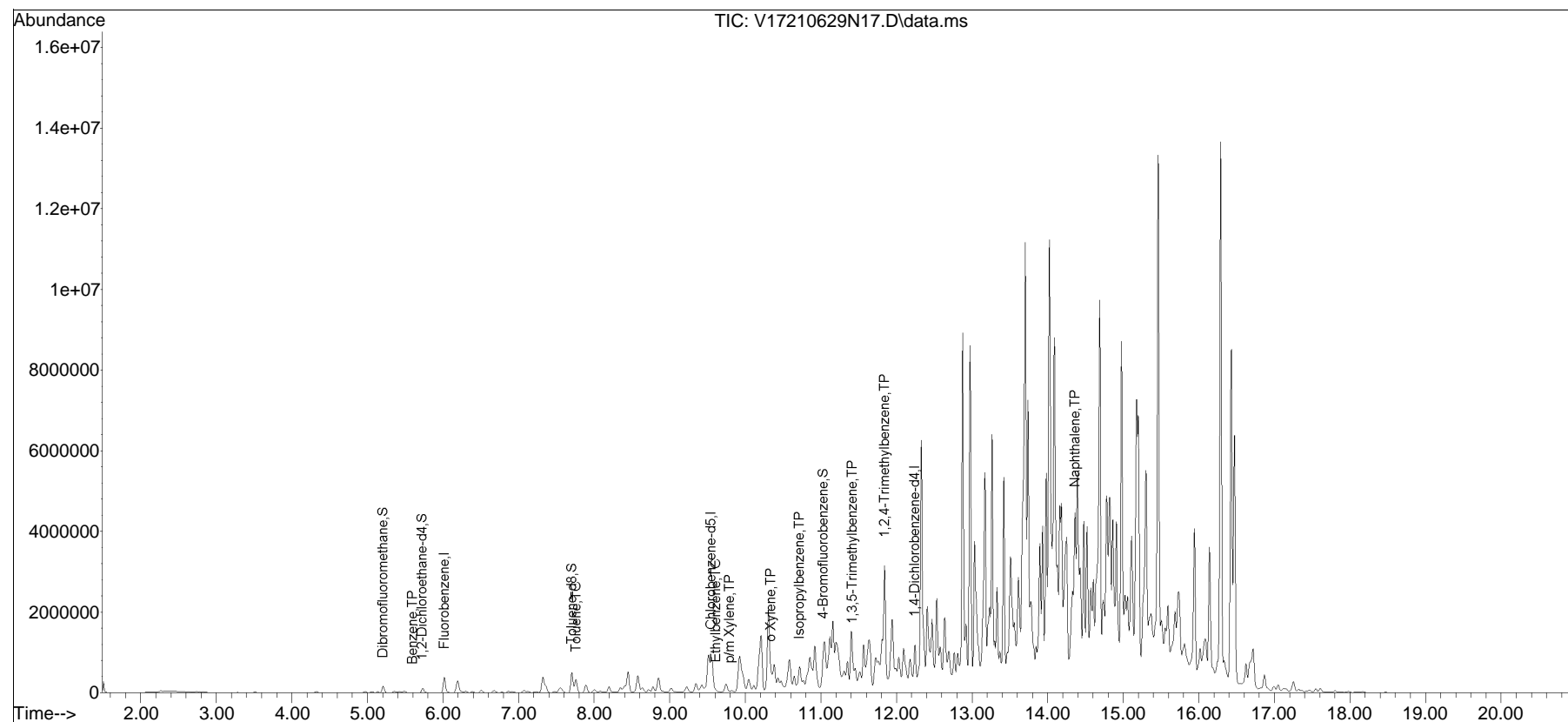


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
 Data File : V17210629N17.D
 Acq On : 30 Jun 2021 01:28 am
 Operator : VOA117:JC
 Sample : L2133575-15,31H,5.95,5,0.100,,A
 Misc : WG1518719,ICAL18099
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 30 06:17:17 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

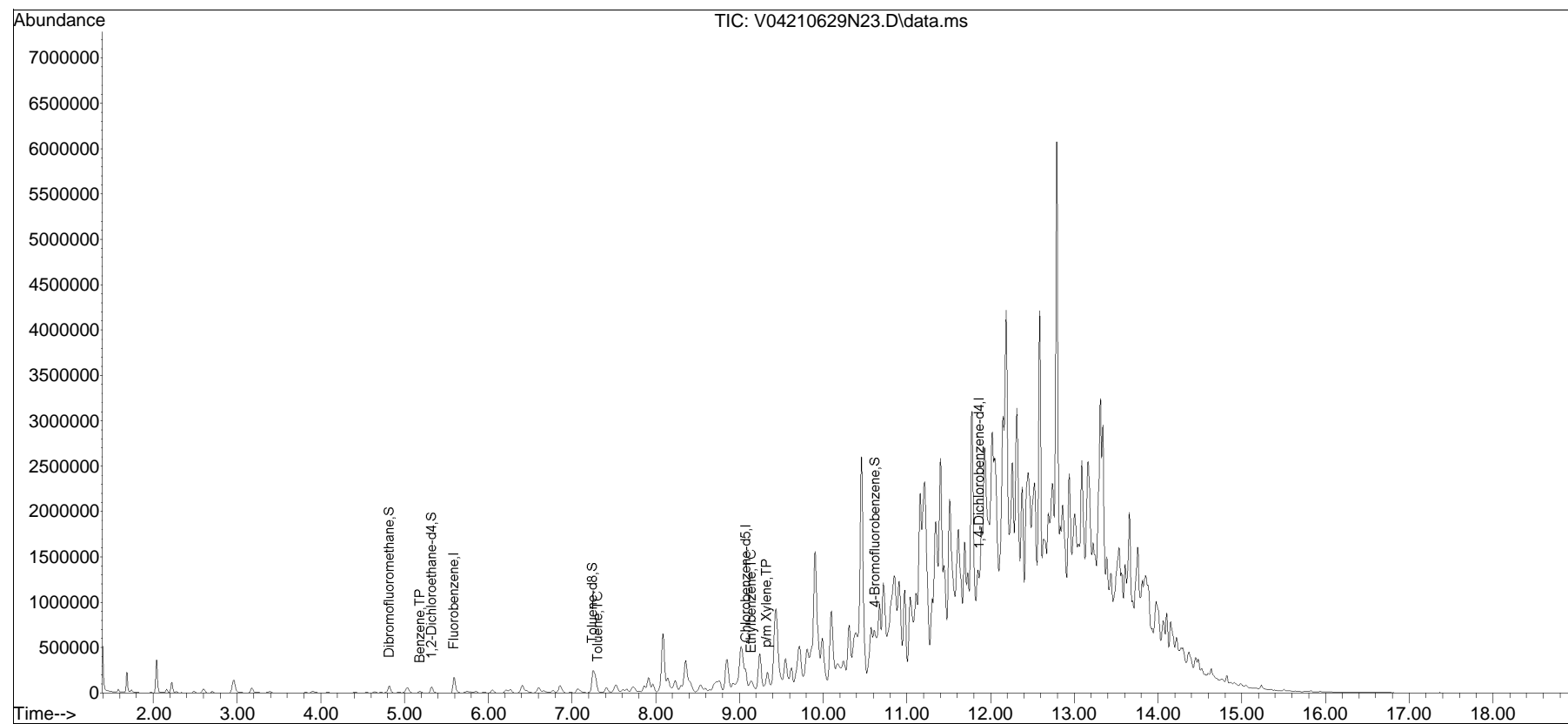


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210629\
Data File : V04210629N23.D
Acq On : 30 Jun 2021 1:48 am
Operator : VOA104:JC
Sample : L2133575-17,31,3.66,5,,C
Misc : WG1518837,ICAL18000
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 30 07:20:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210629N\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V04210629N01.D•





ANALYTICAL REPORT

Lab Number:	L2133823
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:	07/19/21

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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: L2133823
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133823-01	PB40-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:00	06/22/21
L2133823-02	PB40-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:20	06/22/21
L2133823-03	PB40-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:30	06/22/21
L2133823-04	PB40-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:50	06/22/21
L2133823-05	PB40-07-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:00	06/22/21
L2133823-06	PB40-08-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:15	06/22/21
L2133823-07	PB40-09-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:30	06/22/21
L2133823-08	PB40-10-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:45	06/22/21
L2133823-09	PB40-11-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:55	06/22/21
L2133823-10	PB40-12-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:05	06/22/21
L2133823-11	PB40-13-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:15	06/22/21
L2133823-12	PB40-14-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:30	06/22/21
L2133823-13	PB40-15-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:40	06/22/21
L2133823-14	PB40-16-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:50	06/22/21
L2133823-15	PB128-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:10	06/22/21
L2133823-16	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:15	06/22/21
L2133823-17	PB128-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:25	06/22/21
L2133823-18	PB128-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:35	06/22/21
L2133823-19	PB128-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:45	06/22/21
L2133823-20	PB128-05-SS01	SOIL	PHILADELPHIA, PA	06/22/21 13:00	06/22/21
L2133823-21	DUP-8	SOIL	PHILADELPHIA, PA	06/22/21 13:10	06/22/21
L2133823-22	FB-210622-1	WATER	PHILADELPHIA, PA	06/22/21 12:00	06/22/21
L2133823-23	FB-210622-2	WATER	PHILADELPHIA, PA	06/22/21 13:20	06/22/21
L2133823-24	TB	WATER	PHILADELPHIA, PA	06/22/21 00:00	06/22/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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: L2133823
Report Date: 07/19/21

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.

Sample Receipt

L2133823-16: The analyses were canceled at the client's request.

Volatile Organics

L2133823-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (253%); 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.

L2133823-02D, -06D, and -08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133823-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (262%); 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.

L2133823-03, -04, -05, and -10: 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.

L2133823-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (244%); 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.

L2133823-04: 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.

L2133823-05: 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.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Case Narrative (continued)

L2133823-06D: 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.

L2133823-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (301%); 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.

L2133823-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (156%); 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.

L2133823-10: 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.

L2133823-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (358%); 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.

L2133823-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); 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.

L2133823-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%); 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.

L2133823-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (776%); 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.

L2133823-17: 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.

L2133823-17 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (44%), and 1,4-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Case Narrative (continued)

dichlorobenzene-d4 (34%) and the surrogate recovery for 4-bromofluorobenzene (239%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2133823-19: 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.

L2133823-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (252%); 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.

L2133823-20 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-20: 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.

Total Metals

The WG1517740-3 MS recovery for lead (0%), performed on L2133823-01, does not apply because the sample concentration is greater than four times the spike amount added.

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: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-01
 Client ID: PB40-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 13:48
 Analyst: AJK
 Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.040	J	mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.087	0.022	1
Toluene	0.062	J	mg/kg	0.087	0.047	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.061	J	mg/kg	0.087	0.012	1
p/m-Xylene	0.21		mg/kg	0.17	0.049	1
o-Xylene	0.055	J	mg/kg	0.087	0.025	1
Xylenes, Total	0.26	J	mg/kg	0.087	0.025	1
Isopropylbenzene	3.9		mg/kg	0.087	0.0095	1
1,3,5-Trimethylbenzene	0.027	J	mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.17	0.029	1
Naphthalene	1.2		mg/kg	0.35	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	253	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02 D
 Client ID: PB40-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:20
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 12:31
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	ND		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	ND		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	0.044	J	mg/kg	0.12	0.017	2
p/m-Xylene	ND		mg/kg	0.25	0.069	2
o-Xylene	0.12		mg/kg	0.12	0.036	2
Xylenes, Total	0.12		mg/kg	0.12	0.036	2
Isopropylbenzene	12.		mg/kg	0.12	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	0.058	J	mg/kg	0.25	0.041	2
Naphthalene	1.8		mg/kg	0.50	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	262	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03
 Client ID: PB40-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:30
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 14:14
 Analyst: AJK
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	1
Benzene	0.039	J	mg/kg	0.065	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	1
Toluene	0.10	J	mg/kg	0.13	0.071	1
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	1
Ethylbenzene	0.14		mg/kg	0.13	0.018	1
p/m-Xylene	0.34		mg/kg	0.26	0.073	1
o-Xylene	0.12	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.46	J	mg/kg	0.13	0.038	1
Isopropylbenzene	3.2		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.059	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.26	0.044	1
Naphthalene	1.9		mg/kg	0.52	0.085	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	244	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04
 Client ID: PB40-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:50
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 14:39
 Analyst: AJK
 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	0.014	J	mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.036	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.069		mg/kg	0.060	0.0084	1
p/m-Xylene	0.22		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	0.22		mg/kg	0.060	0.017	1
Isopropylbenzene	0.49		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.12	0.020	1
Naphthalene	0.15	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	168	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05
 Client ID: PB40-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 16:09
 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	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0086	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.026	J	mg/kg	0.052	0.0073	1
p/m-Xylene	0.057	J	mg/kg	0.10	0.029	1
o-Xylene	0.020	J	mg/kg	0.052	0.015	1
Xylenes, Total	0.077	J	mg/kg	0.052	0.015	1
Isopropylbenzene	0.064		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	0.23		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.74		mg/kg	0.10	0.017	1
Naphthalene	0.12	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	142	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06 D
 Client ID: PB40-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:15
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 12:57
 Analyst: AJK
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	2
Benzene	ND		mg/kg	0.055	0.018	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	2
Toluene	ND		mg/kg	0.11	0.060	2
1,2-Dibromoethane	ND		mg/kg	0.055	0.032	2
Ethylbenzene	0.029	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.062	2
o-Xylene	0.069	J	mg/kg	0.11	0.032	2
Xylenes, Total	0.069	J	mg/kg	0.11	0.032	2
Isopropylbenzene	1.1		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.021	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.22	0.037	2
Naphthalene	0.63		mg/kg	0.44	0.072	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07
 Client ID: PB40-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:30
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 09:07
 Analyst: MV
 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	0.0021	0.00021	1
Benzene	0.0049		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	0.0012		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	0.0014		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	0.0024	J	mg/kg	0.0042	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	102		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08 D
 Client ID: PB40-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:45
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 13:23
 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	0.22	0.023	2
Benzene	ND		mg/kg	0.056	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.061	2
1,2-Dibromoethane	ND		mg/kg	0.056	0.033	2
Ethylbenzene	0.24		mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.063	2
o-Xylene	0.10	J	mg/kg	0.11	0.033	2
Xylenes, Total	0.10	J	mg/kg	0.11	0.033	2
Isopropylbenzene	4.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	0.17	J	mg/kg	0.22	0.038	2
Naphthalene	0.50		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	301	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09
 Client ID: PB40-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:55
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 09:32
 Analyst: MV
 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	0.0022	0.00022	1
Benzene	0.023		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.030		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.027		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.078		mg/kg	0.0022	0.00060	1
o-Xylene	0.047		mg/kg	0.0011	0.00031	1
Xylenes, Total	0.12		mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.021		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.037		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.11		mg/kg	0.0022	0.00036	1
Naphthalene	0.035		mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	156	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
 Client ID: PB40-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:05
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 16:36
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.13	0.013	1
Benzene	0.59		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	0.17		mg/kg	0.065	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.83		mg/kg	0.065	0.0092	1
p/m-Xylene	0.97		mg/kg	0.13	0.037	1
o-Xylene	0.084		mg/kg	0.065	0.019	1
Xylenes, Total	1.0		mg/kg	0.065	0.019	1
Isopropylbenzene	1.4		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.040	J	mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.13	0.022	1
Naphthalene	0.79		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
 Client ID: PB40-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:15
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 09:57
 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	0.0026	0.00026	1
Benzene	0.00095		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	0.0025		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	0.00042	J	mg/kg	0.0013	0.00019	1
p/m-Xylene	0.0012	J	mg/kg	0.0026	0.00074	1
o-Xylene	0.0020		mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0032	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.038		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00026	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0026	0.00044	1
Naphthalene	0.0058		mg/kg	0.0053	0.00086	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	358	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12
 Client ID: PB40-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:30
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 10:22
 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	0.12		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0094		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.010		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.011		mg/kg	0.0020	0.00057	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.029		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.023		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.073		mg/kg	0.0020	0.00034	1
Naphthalene	0.033		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	171	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13
 Client ID: PB40-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:40
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 10:47
 Analyst: AJK
 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	0.0020	0.00020	1
Benzene	0.0018		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0033		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0075		mg/kg	0.0020	0.00057	1
o-Xylene	0.0093		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.017		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.012		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.032		mg/kg	0.0020	0.00034	1
Naphthalene	0.016		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	141	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
 Client ID: PB40-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:50
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 06/30/21 11:12
 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	0.00070		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	0.0027		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.0025		mg/kg	0.00098	0.00014	1
p/m-Xylene	0.0072		mg/kg	0.0020	0.00055	1
o-Xylene	0.024		mg/kg	0.00098	0.00029	1
Xylenes, Total	0.031		mg/kg	0.00098	0.00029	1
Isopropylbenzene	0.046		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0020	0.00033	1
Naphthalene	0.0028	J	mg/kg	0.0039	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	776	Q	70-130
Dibromofluoromethane	82		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
 Client ID: PB128-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:10
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 00:39
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.15		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.085	0.022	1
Toluene	0.27		mg/kg	0.085	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.24		mg/kg	0.085	0.012	1
p/m-Xylene	17.		mg/kg	0.17	0.048	1
o-Xylene	0.088		mg/kg	0.085	0.025	1
Xylenes, Total	17.		mg/kg	0.085	0.025	1
Isopropylbenzene	2.6		mg/kg	0.085	0.0093	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.17	0.028	1
Naphthalene	3.1		mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15 D
 Client ID: PB128-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:10
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 10:10
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	42.		mg/kg	0.43	0.071	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
 Client ID: PB128-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 01:04
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	0.38		mg/kg	0.044	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.089	0.023	1
Toluene	0.18		mg/kg	0.089	0.048	1
1,2-Dibromoethane	ND		mg/kg	0.044	0.026	1
Ethylbenzene	0.53		mg/kg	0.089	0.012	1
p/m-Xylene	0.34		mg/kg	0.18	0.050	1
o-Xylene	0.29		mg/kg	0.089	0.026	1
Xylenes, Total	0.63		mg/kg	0.089	0.026	1
Isopropylbenzene	0.47		mg/kg	0.089	0.0097	1
1,3,5-Trimethylbenzene	0.069	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.32		mg/kg	0.18	0.030	1
Naphthalene	1.2		mg/kg	0.36	0.058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
 Client ID: PB128-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 08:55
 Analyst: JC
 Percent Solids: 74%

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	0.0030	0.00030	1
Benzene	0.016		mg/kg	0.00076	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	0.0027		mg/kg	0.0015	0.00082	1
1,2-Dibromoethane	ND		mg/kg	0.00076	0.00044	1
Ethylbenzene	0.018		mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0036		mg/kg	0.0030	0.00085	1
o-Xylene	0.010		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.014		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.027		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0045		mg/kg	0.0030	0.00050	1
Naphthalene	0.034		mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	239	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
 Client ID: PB128-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:35
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 00:14
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0043	0.00044	1
Benzene	ND		mg/kg	0.0011	0.00036	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00056	1
Toluene	ND		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00064	1
Ethylbenzene	ND		mg/kg	0.0022	0.00030	1
p/m-Xylene	0.0014	J	mg/kg	0.0043	0.0012	1
o-Xylene	0.0012	J	mg/kg	0.0022	0.00063	1
Xylenes, Total	0.0026	J	mg/kg	0.0022	0.00063	1
Isopropylbenzene	0.0048		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0043	0.00042	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0043	0.00072	1
Naphthalene	ND		mg/kg	0.0087	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19
 Client ID: PB128-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:45
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 01:29
 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	0.18	0.018	1
Benzene	1.3		mg/kg	0.045	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	0.32		mg/kg	0.091	0.049	1
1,2-Dibromoethane	ND		mg/kg	0.045	0.026	1
Ethylbenzene	0.16		mg/kg	0.091	0.013	1
p/m-Xylene	0.65		mg/kg	0.18	0.051	1
o-Xylene	0.24		mg/kg	0.091	0.026	1
Xylenes, Total	0.89		mg/kg	0.091	0.026	1
Isopropylbenzene	3.5		mg/kg	0.091	0.0099	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.18	0.030	1
Naphthalene	0.44		mg/kg	0.36	0.059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	252	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
 Client ID: PB128-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 01:54
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.021	1
Benzene	1.4		mg/kg	0.053	0.017	1
1,2-Dichloroethane	ND		mg/kg	0.10	0.027	1
Toluene	1.3		mg/kg	0.10	0.057	1
1,2-Dibromoethane	ND		mg/kg	0.053	0.031	1
Ethylbenzene	0.54		mg/kg	0.10	0.015	1
p/m-Xylene	5.7		mg/kg	0.21	0.059	1
o-Xylene	0.53		mg/kg	0.10	0.031	1
Xylenes, Total	6.2		mg/kg	0.10	0.031	1
Isopropylbenzene	1.5		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	1.5		mg/kg	0.21	0.020	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.21	0.035	1
Naphthalene	1.0		mg/kg	0.42	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
 Client ID: PB128-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 09:20
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0044	0.00045	1
Benzene	0.0056		mg/kg	0.0011	0.00037	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00057	1
Toluene	0.0061		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00065	1
Ethylbenzene	0.0021	J	mg/kg	0.0022	0.00031	1
p/m-Xylene	0.020		mg/kg	0.0044	0.0012	1
o-Xylene	0.017		mg/kg	0.0022	0.00065	1
Xylenes, Total	0.037		mg/kg	0.0022	0.00065	1
Isopropylbenzene	0.12		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0044	0.00043	1
1,2,4-Trimethylbenzene	0.016		mg/kg	0.0044	0.00074	1
Naphthalene	0.0092		mg/kg	0.0089	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	191	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21
 Client ID: DUP-8
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:10
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 02:19
 Analyst: JC
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	1.2		mg/kg	0.049	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.098	0.025	1
Toluene	1.0		mg/kg	0.098	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.049	0.029	1
Ethylbenzene	0.52		mg/kg	0.098	0.014	1
p/m-Xylene	6.2		mg/kg	0.20	0.055	1
o-Xylene	0.54		mg/kg	0.098	0.029	1
Xylenes, Total	6.7		mg/kg	0.098	0.029	1
Isopropylbenzene	1.9		mg/kg	0.098	0.011	1
1,3,5-Trimethylbenzene	3.6		mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	8.4		mg/kg	0.20	0.033	1
Naphthalene	1.6		mg/kg	0.39	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22
 Client ID: FB-210622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/25/21 15:57
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/25/21 13:23

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: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22
 Client ID: FB-210622-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 11:39
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23
 Client ID: FB-210622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:20
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/25/21 16:03
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/25/21 13:23

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: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23
 Client ID: FB-210622-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:20
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 12:06
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-24
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 00:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 12:55
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 22-23 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,09,11-14 Batch: WG1518909-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-06,08,10 Batch: WG1519110-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18 Batch: WG1519269-5					
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	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1519270-10					
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	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15,17,19-21 Batch: WG1519270-5					
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	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,20 Batch: WG1519390-5					
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	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22-23 Batch: WG1520387-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24 Batch: WG1520863-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		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: L2133823

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 22-23 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,09,11-14 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-06,08,10 Batch: WG1519110-3 WG1519110-4									
Methyl tert butyl ether	93		93		66-130		0		30
Benzene	79		76		70-130		4		30
1,2-Dichloroethane	87		87		70-130		0		30
Toluene	82		80		70-130		2		30
1,2-Dibromoethane	89		89		70-130		0		30
Ethylbenzene	89		85		70-130		5		30
p/m-Xylene	84		80		70-130		5		30
o-Xylene	84		80		70-130		5		30
Isopropylbenzene	94		91		70-130		3		30
1,3,5-Trimethylbenzene	96		94		70-130		2		30
1,2,4-Trimethylbenzene	97		94		70-130		3		30
Naphthalene	100		103		70-130		3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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: WG1519269-3 WG1519269-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15,17,19-21 Batch: WG1519270-3 WG1519270-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1519270-8 WG1519270-9								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,20 Batch: WG1519390-3 WG1519390-4								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22-23 Batch: WG1520387-3 WG1520387-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	99		100		70-130	1		20
1,2-Dichloroethane	100		110		70-130	10		20
Toluene	95		100		70-130	5		20
Ethylbenzene	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	98		100		70-130	2		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	103		100		70-130
Dibromofluoromethane	98		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130



METALS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-01
 Client ID: PB40-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	272		mg/kg	2.90	0.155	1	06/29/21 08:20	07/19/21 09:46	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02

Date Collected: 06/22/21 08:20

Client ID: PB40-02-SS01

Date Received: 06/22/21

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	6.14		mg/kg	2.39	0.128	1	06/29/21 08:20	07/16/21 19:39	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03

Date Collected: 06/22/21 08:30

Client ID: PB40-03-SS01

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	297		mg/kg	2.64	0.141	1	06/29/21 08:20	07/16/21 19:44	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04

Date Collected: 06/22/21 08:50

Client ID: PB40-04-SS01

Date Received: 06/22/21

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	36.3		mg/kg	2.27	0.121	1	06/29/21 08:20	07/16/21 19:49	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05

Date Collected: 06/22/21 09:00

Client ID: PB40-07-SS01

Date Received: 06/22/21

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	463		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 19:54	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06

Date Collected: 06/22/21 09:15

Client ID: PB40-08-SS01

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	41.1		mg/kg	2.04	0.110	1	06/29/21 08:20	07/16/21 19:59	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07

Date Collected: 06/22/21 09:30

Client ID: PB40-09-SS01

Date Received: 06/22/21

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	15.5		mg/kg	2.08	0.112	1	06/29/21 08:20	07/16/21 20:23	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08

Date Collected: 06/22/21 09:45

Client ID: PB40-10-SS01

Date Received: 06/22/21

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	58.2		mg/kg	2.20	0.118	1	06/29/21 08:20	07/16/21 20:27	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09

Date Collected: 06/22/21 09:55

Client ID: PB40-11-SS01

Date Received: 06/22/21

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	258		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 20:37	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
 Client ID: PB40-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:05
 Date Received: 06/22/21
 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	1070		mg/kg	2.42	0.130	1	06/29/21 08:20	07/16/21 20:42	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
 Client ID: PB40-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:15
 Date Received: 06/22/21
 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	8.13		mg/kg	2.35	0.126	1	06/29/21 08:20	07/16/21 21:21	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12
 Client ID: PB40-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:30
 Date Received: 06/22/21
 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	248		mg/kg	2.28	0.122	1	06/29/21 08:20	07/16/21 20:47	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13

Date Collected: 06/22/21 10:40

Client ID: PB40-15-SS01

Date Received: 06/22/21

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	34.4		mg/kg	2.10	0.113	1	06/29/21 08:20	07/16/21 21:26	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14

Date Collected: 06/22/21 10:50

Client ID: PB40-16-SS01

Date Received: 06/22/21

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	40.1		mg/kg	2.33	0.125	1	06/29/21 08:20	07/16/21 21:31	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15

Date Collected: 06/22/21 12:10

Client ID: PB128-01-SS01

Date Received: 06/22/21

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	1980		mg/kg	2.46	0.132	1	06/29/21 08:20	07/16/21 21:36	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17

Date Collected: 06/22/21 12:25

Client ID: PB128-02-SS01

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	361		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 21:41	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
 Client ID: PB128-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:35
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.84		mg/kg	2.60	0.139	1	06/29/21 08:20	07/16/21 21:46	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19

Date Collected: 06/22/21 12:45

Client ID: PB128-04-SS01

Date Received: 06/22/21

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	310		mg/kg	2.32	0.124	1	06/29/21 08:20	07/16/21 21:51	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
 Client ID: PB128-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:00
 Date Received: 06/22/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1070		mg/kg	2.57	0.138	1	06/29/21 08:20	07/16/21 21:56	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21

Date Collected: 06/22/21 13:10

Client ID: DUP-8

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1470		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 22:11	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22

Date Collected: 06/22/21 12:00

Client ID: FB-210622-1

Date Received: 06/22/21

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	06/29/21 04:52	07/01/21 22:52	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23

Date Collected: 06/22/21 13:20

Client ID: FB-210622-2

Date Received: 06/22/21

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	06/29/21 04:52	07/01/21 22:57	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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: WG1517034-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 16:46	1,6020B	CD

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): 01-15,17-21 Batch: WG1517740-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/29/21 08:20	07/16/21 20:13	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 Batch: WG1517034-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 Batch: WG1517740-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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): 22-23 QC Batch ID: WG1517034-3 WG1517034-4 QC Sample: L2134066-03 Client ID: MS Sample												
Lead, Total	ND	510	487.7	96		479.8	94		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-3 QC Sample: L2133823-01 Client ID: PB40-01-SS01												
Lead, Total	272	60.3	214	0	Q	-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133823

Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-4 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	235	mg/kg	15		20

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2133823

Report Date: 07/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-6 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	297	mg/kg	9		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-01

Date Collected: 06/22/21 08:00

Client ID: PB40-01-SS01

Date Received: 06/22/21

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	68.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02

Date Collected: 06/22/21 08:20

Client ID: PB40-02-SS01

Date Received: 06/22/21

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	81.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03

Date Collected: 06/22/21 08:30

Client ID: PB40-03-SS01

Date Received: 06/22/21

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	72.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04

Date Collected: 06/22/21 08:50

Client ID: PB40-04-SS01

Date Received: 06/22/21

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	82.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133823-05

Date Collected: 06/22/21 09:00

Client ID: PB40-07-SS01

Date Received: 06/22/21

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	84.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06

Date Collected: 06/22/21 09:15

Client ID: PB40-08-SS01

Date Received: 06/22/21

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	92.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07

Date Collected: 06/22/21 09:30

Client ID: PB40-09-SS01

Date Received: 06/22/21

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	91.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08

Date Collected: 06/22/21 09:45

Client ID: PB40-10-SS01

Date Received: 06/22/21

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	85.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09
Client ID: PB40-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:55
Date Received: 06/22/21
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	84.5		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133823-10

Date Collected: 06/22/21 10:05

Client ID: PB40-12-SS01

Date Received: 06/22/21

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	81.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11

Date Collected: 06/22/21 10:15

Client ID: PB40-13-SS01

Date Received: 06/22/21

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	82.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12

Date Collected: 06/22/21 10:30

Client ID: PB40-14-SS01

Date Received: 06/22/21

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	84.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13

Date Collected: 06/22/21 10:40

Client ID: PB40-15-SS01

Date Received: 06/22/21

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	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14

Date Collected: 06/22/21 10:50

Client ID: PB40-16-SS01

Date Received: 06/22/21

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	83.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
Client ID: PB128-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:10
Date Received: 06/22/21
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	78.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
 Client ID: PB128-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
 Date Received: 06/22/21
 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	73.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18

Date Collected: 06/22/21 12:35

Client ID: PB128-03-SS01

Date Received: 06/22/21

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	73.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2133823-19

Date Collected: 06/22/21 12:45

Client ID: PB128-04-SS01

Date Received: 06/22/21

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	81.6		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20

Date Collected: 06/22/21 13:00

Client ID: PB128-05-SS01

Date Received: 06/22/21

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	73.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21

Date Collected: 06/22/21 13:10

Client ID: DUP-8

Date Received: 06/22/21

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	75.2		%	0.100	NA	1	-	06/23/21 08:59	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133823

Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,17-20 QC Batch ID: WG1515779-1 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Solids, Total	68.4	67.2	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515781-1 QC Sample: L2133712-01 Client ID: DUP Sample						
Solids, Total	90.0	91.0	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**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(*)
L2133823-01A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-01B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-01E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-02A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-02B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-02E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-03A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-03B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-03E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-04A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-04B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-04E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-05A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-05B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-05C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-05E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-06A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-06B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-06E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-07A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-07B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-07E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-08A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-08B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-08E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-09A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-09B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-09E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-10A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-10B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-10E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-11A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-11B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-11E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-12A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-12B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-12E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-13A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-13B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-13E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-14A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-14B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-14E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-15A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-15B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-15E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-16A	Vial MeOH preserved	B	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2133823-16B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)
L2133823-16C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-16E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2133823-17A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-17B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-17E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-18A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-18B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-18E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-19A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-19B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-19E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-20A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-20B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-20E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-21A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-21B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-21E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-22A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2133823**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-22C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-23A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-24A	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)
L2133823-24B	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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: L2133823
Report Date: 07/19/21

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: L2133823
Report Date: 07/19/21

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.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

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 3

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:

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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and ljeray@hiccoglobal.com

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

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
 PADEP Storage Tank Program

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 Glyco	VOC portion of PADEP Shortlist
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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		
33823 -01	PB40-01-5501	6/22	0800	S	TS
-02	PB40-02-5501		0820		
-03	PB40-03-5501		0830		
-04	PB40-04-5501		0850		
-05	PB40-07-5501		0900		
-06	PB40-08-5501		0915		
-07	PB40-09-5501		0930		
-08	PB40-10-5501		0945		
-09	PB40-11-5501		0955		
-10	PB40-12-5501		1005		

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

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

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 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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and ljeray@hilcoglobal.com

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

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

PADEP Storage Tank Program

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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	TOTAL # BOTTLES
		Date	Time															
33823 -11	PB40-13-5501	6/22	1015	S	TS	<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
-12	PB40-14-5501	6/22	1030			<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	PB40-15-5501		1040			<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	PB40-16-5501		1050			<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	PB128-01-5501		1210			<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	PB-129-01-5501		1215			<input 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"/>		
-17	PB-128-02-5501		1225			<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"/>		
-18	PB-128-03-5501		1235			<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"/>		
-19	PB-128-04-5501		1245			<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"/>		
-20	PB-128-05-5501		1300			<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"/>		

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Container Type: - - - - -
 Preservative: - - - - -

Relinquished By: [Signature] Date/Time: 6/22/21 1555
 Received By: [Signature] Date/Time: 6/22/21 1500

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

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:

Westborough, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

Mansfield, MA
 TEL: 508-822-9300
 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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

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
 PADEP Storage Tank Program

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 (1,2,4)
<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 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 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 type="checkbox"/>	<input checked="" type="checkbox"/>

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
		Date	Time		
83823 -21	DUP-8	6/22	1310	S	JS
-22	FB-210622-1		1200	W	
-23	FB-210622-2		1200	W	
-24	TB			W	

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.

PADEP Short List Analytical List:

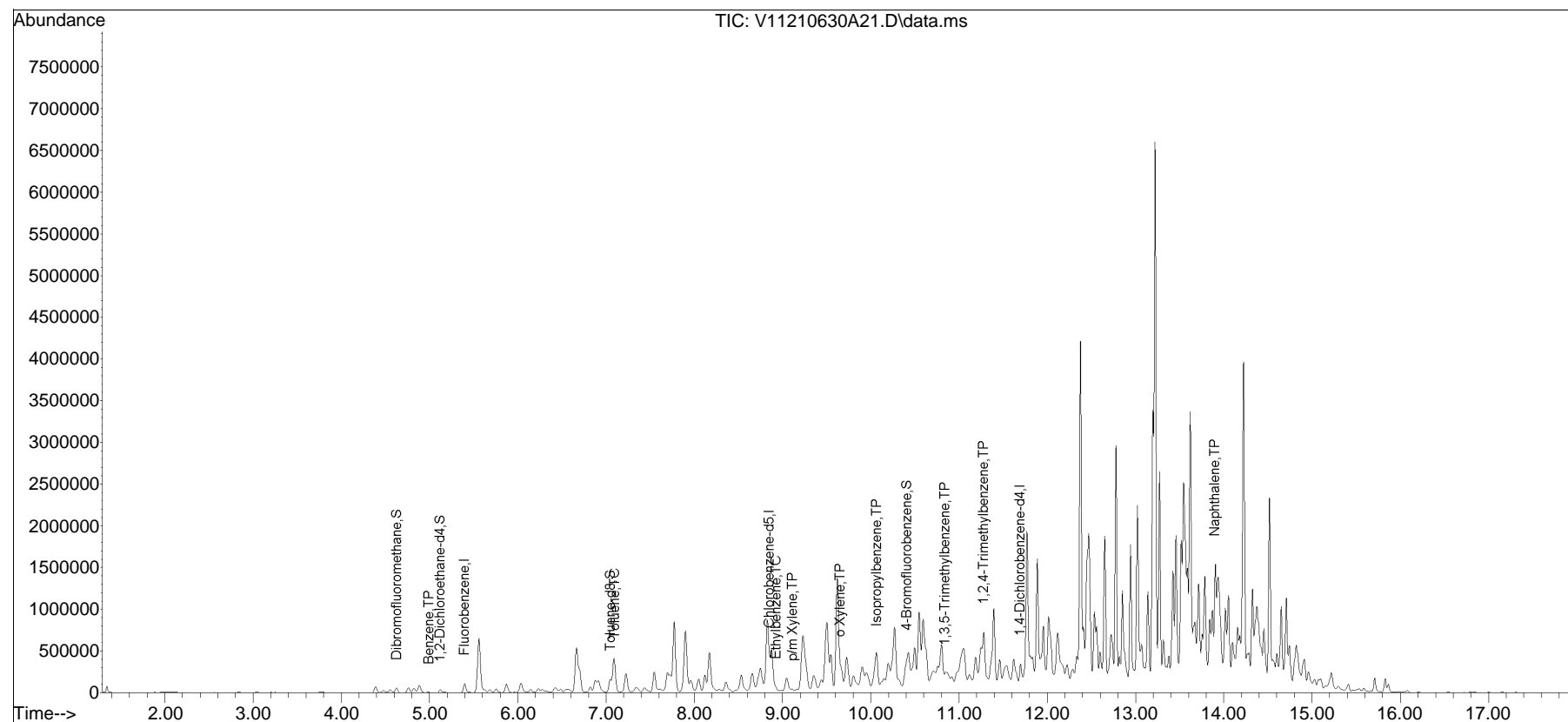
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA111\2021\210630A\
 Data File : V11210630A21.D
 Acq On : 30 Jun 2021 01:48 pm
 Operator : VOA111:AJK
 Sample : L2133823-01,31H,5.73,5,0.100,,A
 Misc : WG1519110,ICAL18049
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 30 16:06:27 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

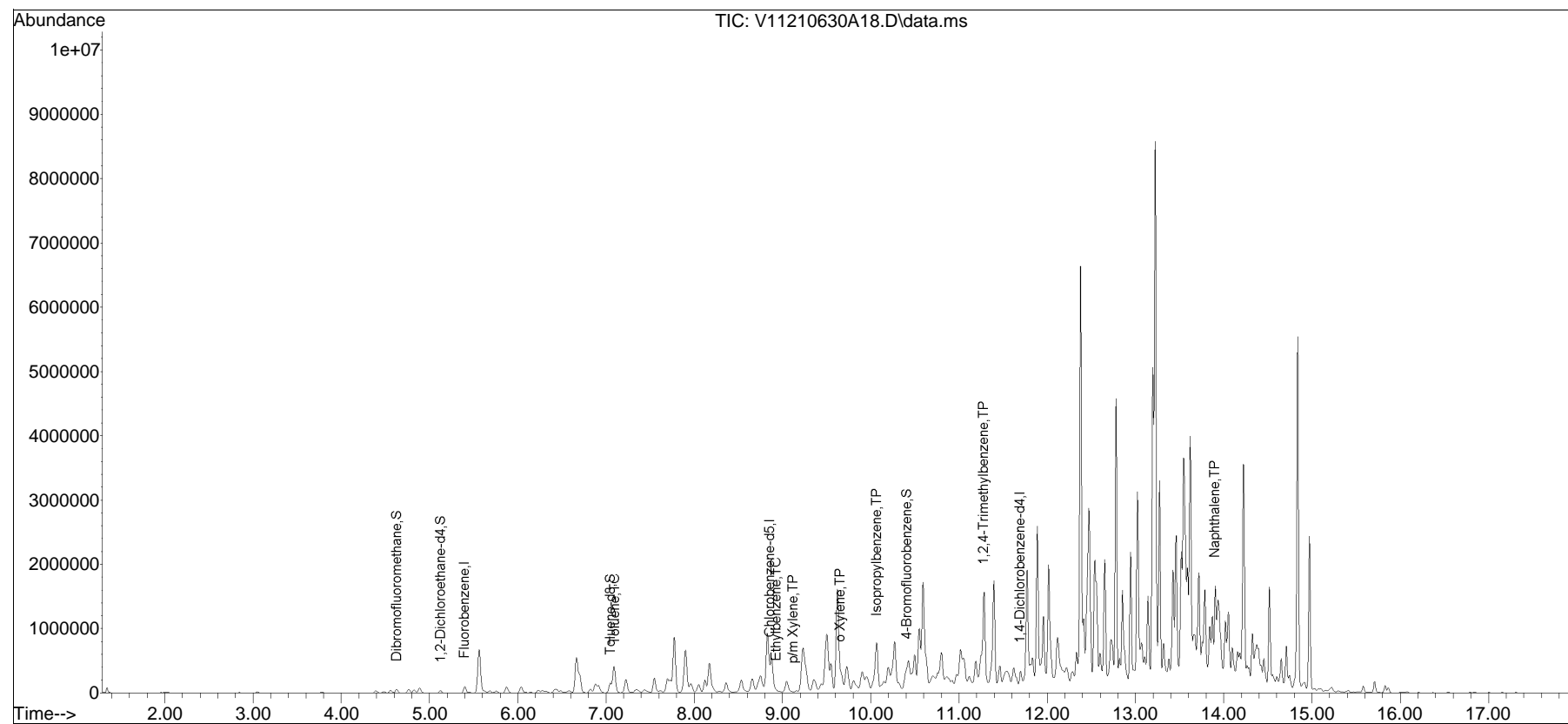


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A18.D
 Acq On : 30 Jun 2021 12:31 pm
 Operator : VOA111:AJK
 Sample : L2133823-02D,31H,6.13,5,0.050,,A
 Misc : WG1519110,ICAL18049
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 30 16:04:23 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

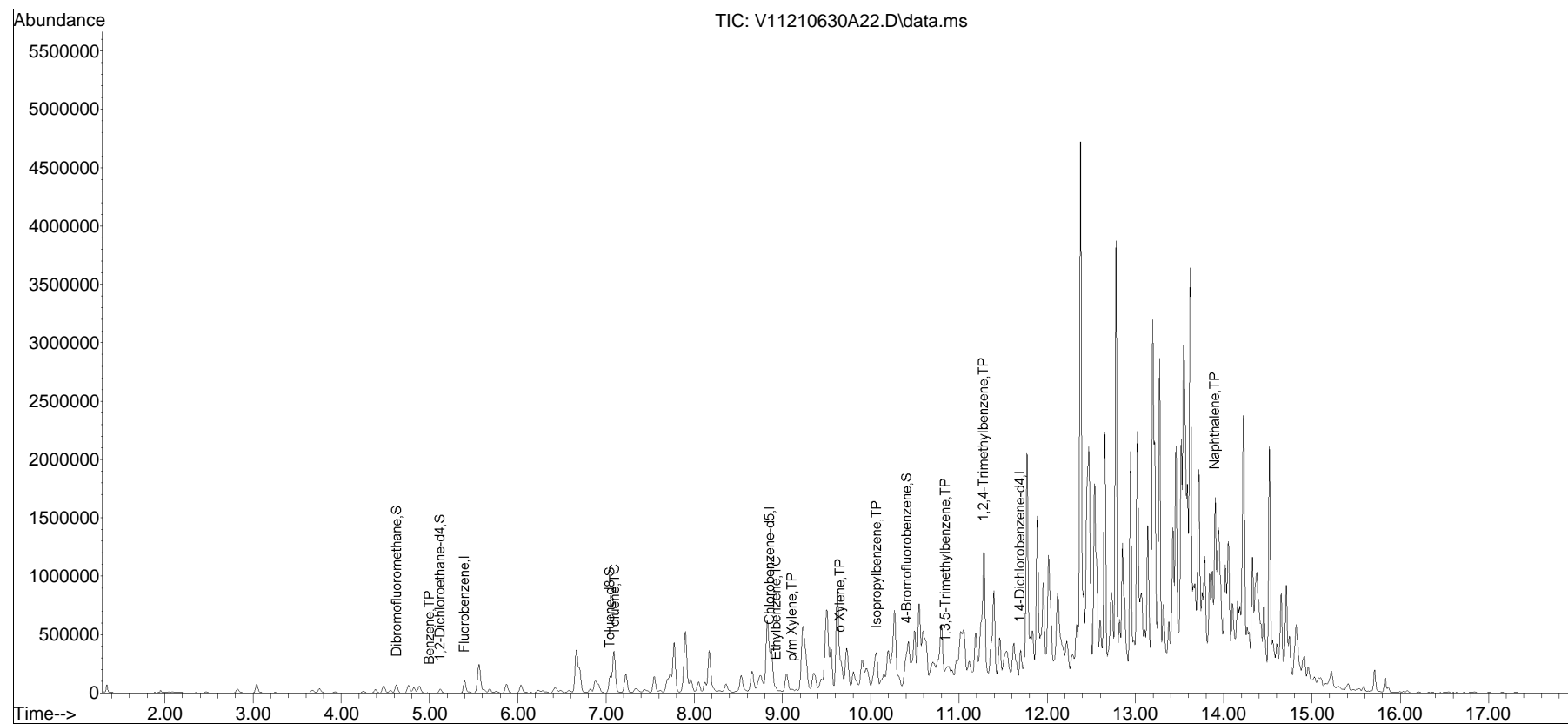


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A22.D
 Acq On : 30 Jun 2021 02:14 pm
 Operator : VOA111:AJK
 Sample : L2133823-03,31H,3.12,5,0.100,,A
 Misc : WG1519110,ICAL18049
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 30 15:58:34 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

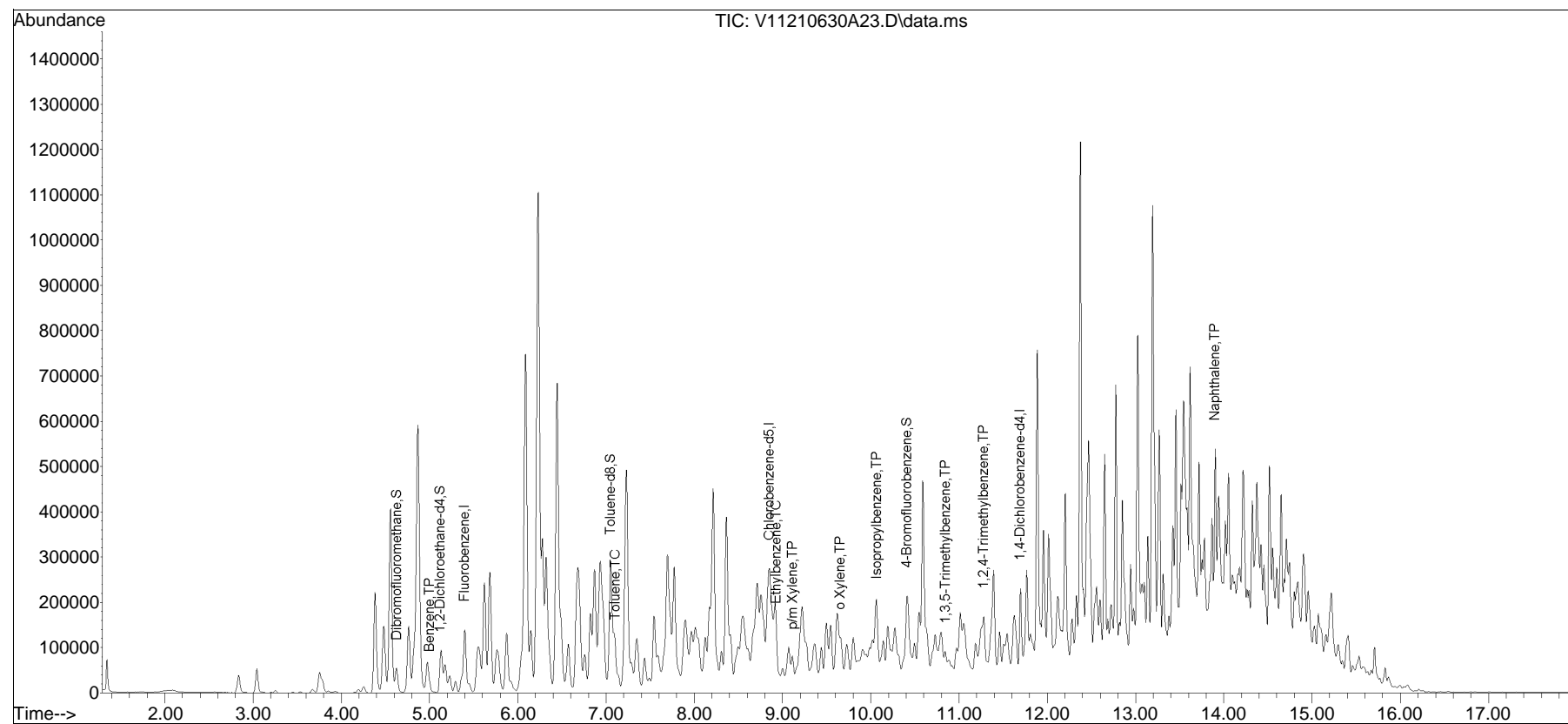


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A23.D
Acq On : 30 Jun 2021 02:39 pm
Operator : VOA111:AJK
Sample : L2133823-04,31H,6.10,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 30 16:07:06 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

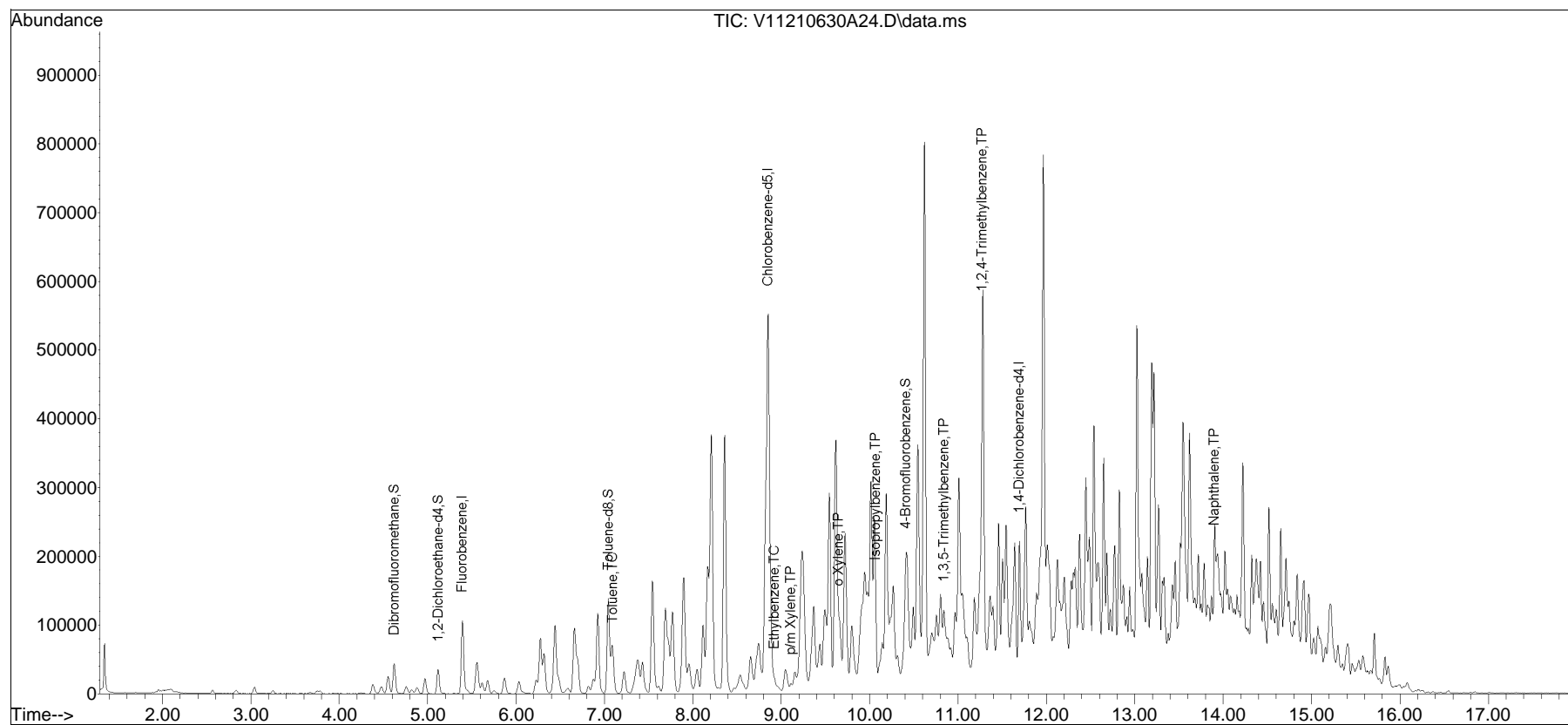


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A24.D
Acq On : 30 Jun 2021 04:09 pm
Operator : VOA111:AJK
Sample : L2133823-05,31H,6.88,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 30 17:07:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

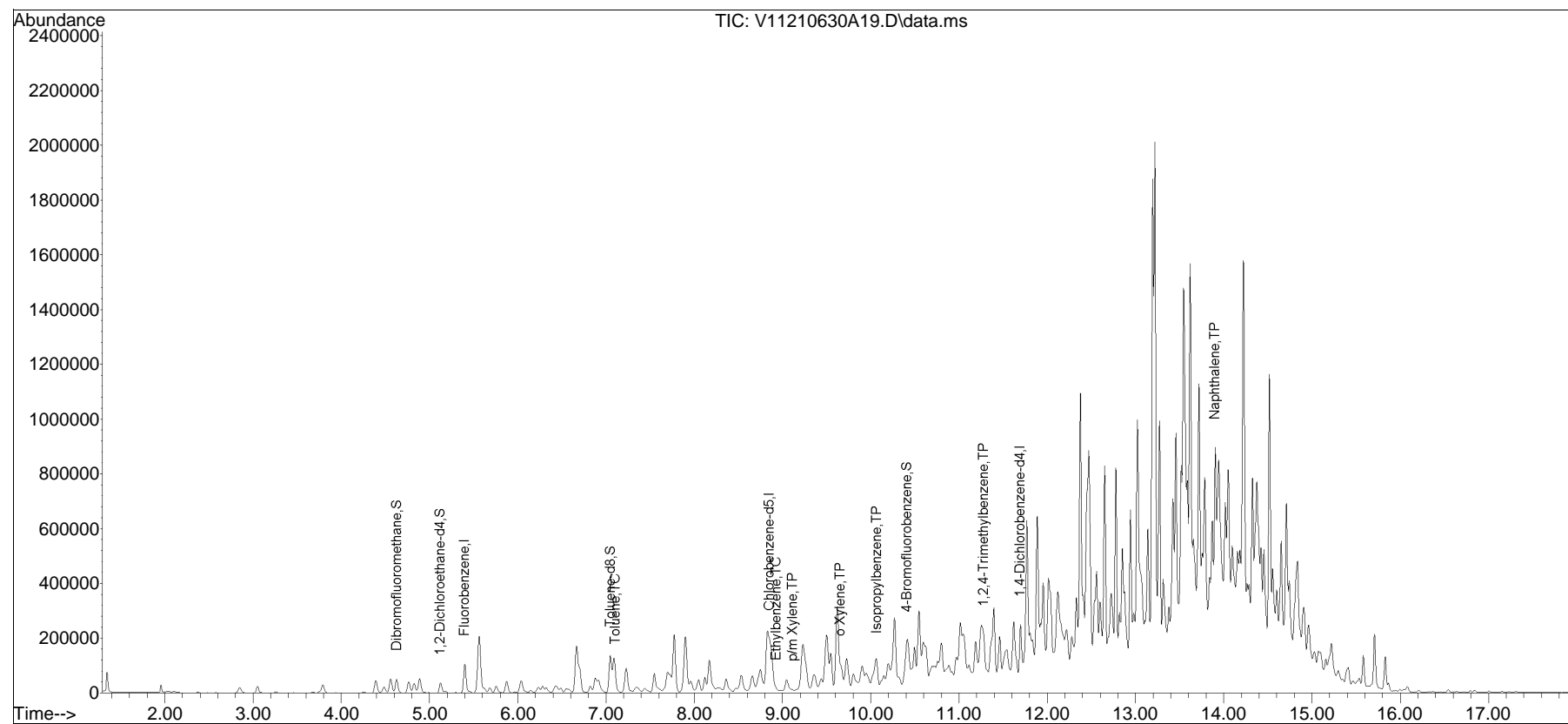


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A19.D
 Acq On : 30 Jun 2021 12:57 pm
 Operator : VOA111:AJK
 Sample : L2133823-06D,31H,5.29,5,0.050,,A
 Misc : WG1519110,ICAL18049
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 30 16:04:58 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

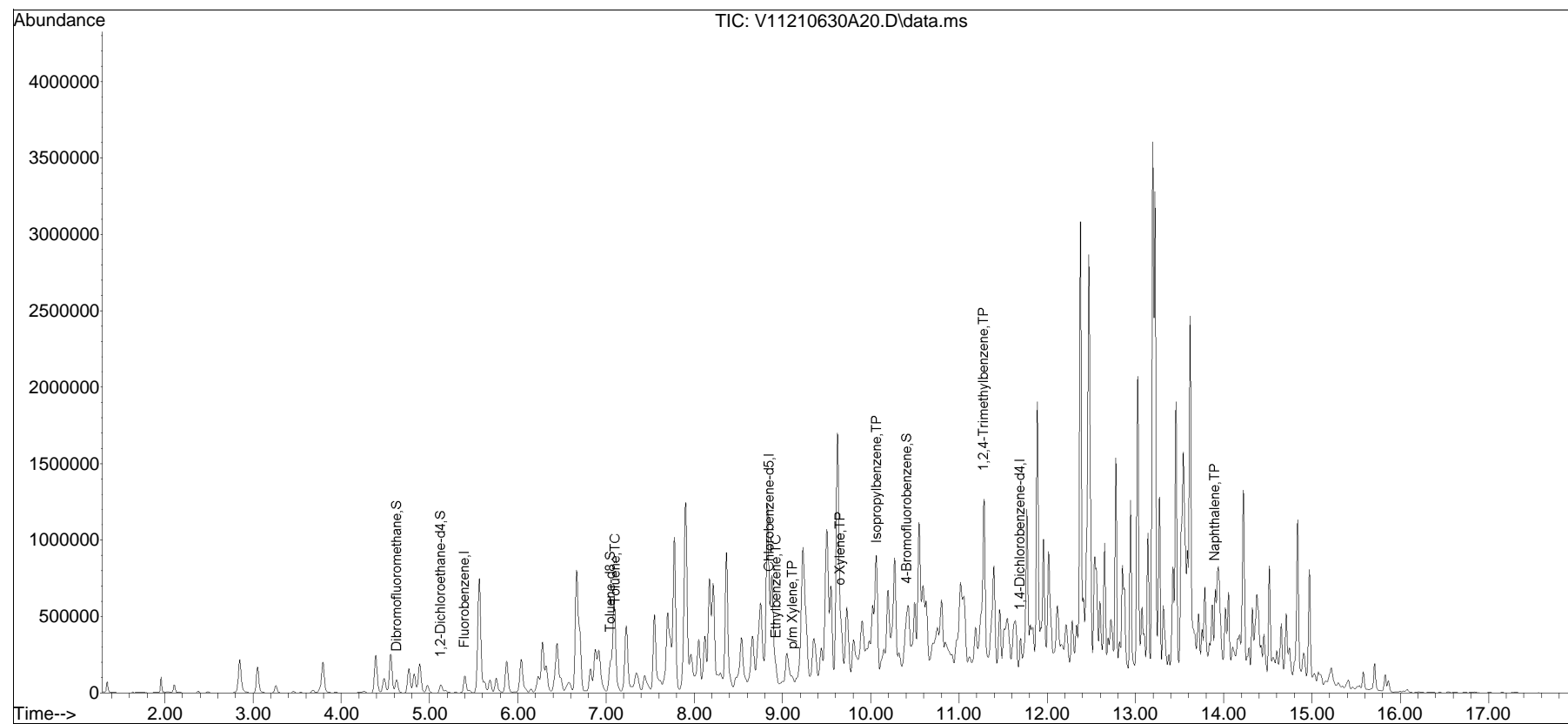


Quantitation Report (QT Reviewed)

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Data File : V11210630A20.D
Acq On : 30 Jun 2021 01:23 pm
Operator : VOA111:AJK
Sample : L2133823-08D,31H,6.14,5,0.050,,A
Misc : WG1519110,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 30 16:06:01 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

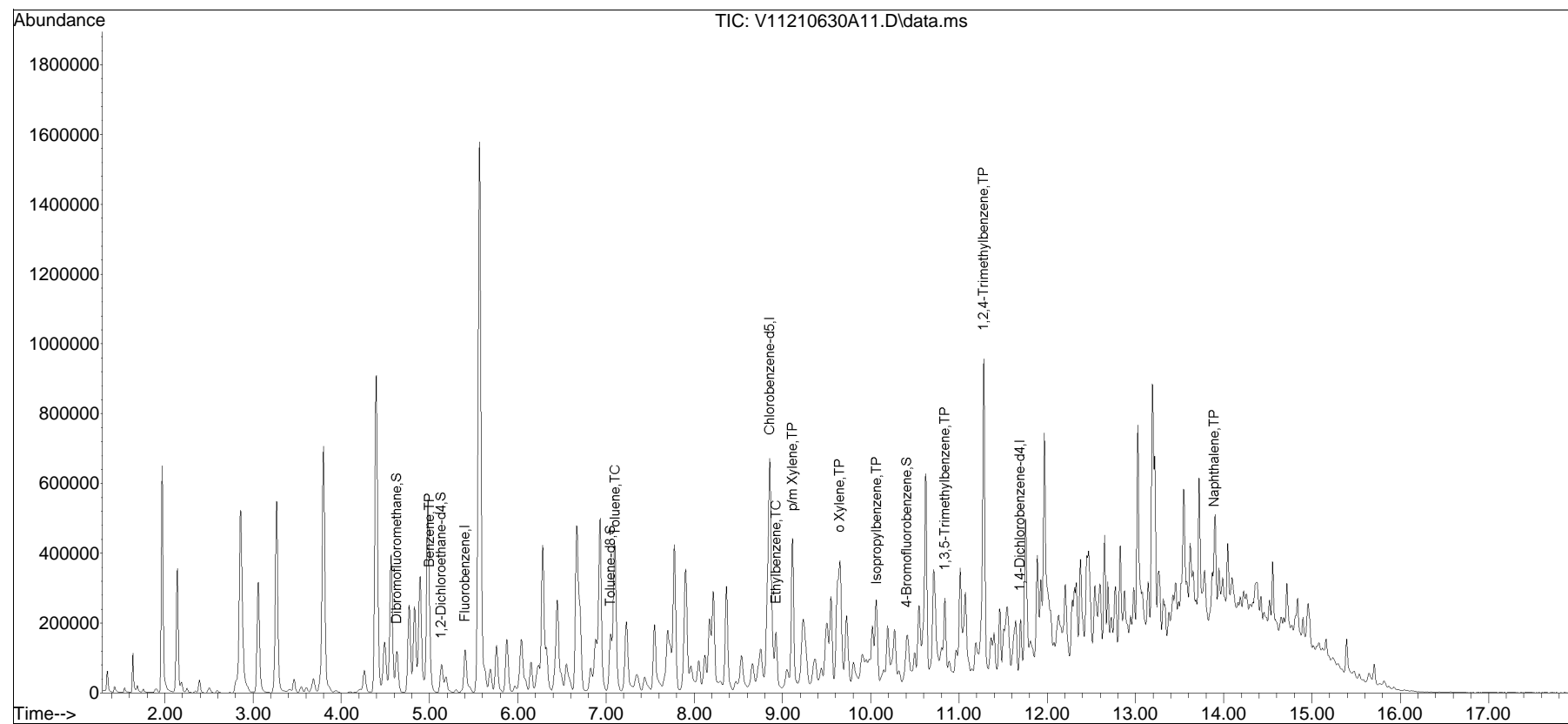


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A11.D
Acq On : 30 Jun 2021 09:32 am
Operator : VOA111:MV
Sample : L2133823-09,31,5.47,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 30 11:02:22 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

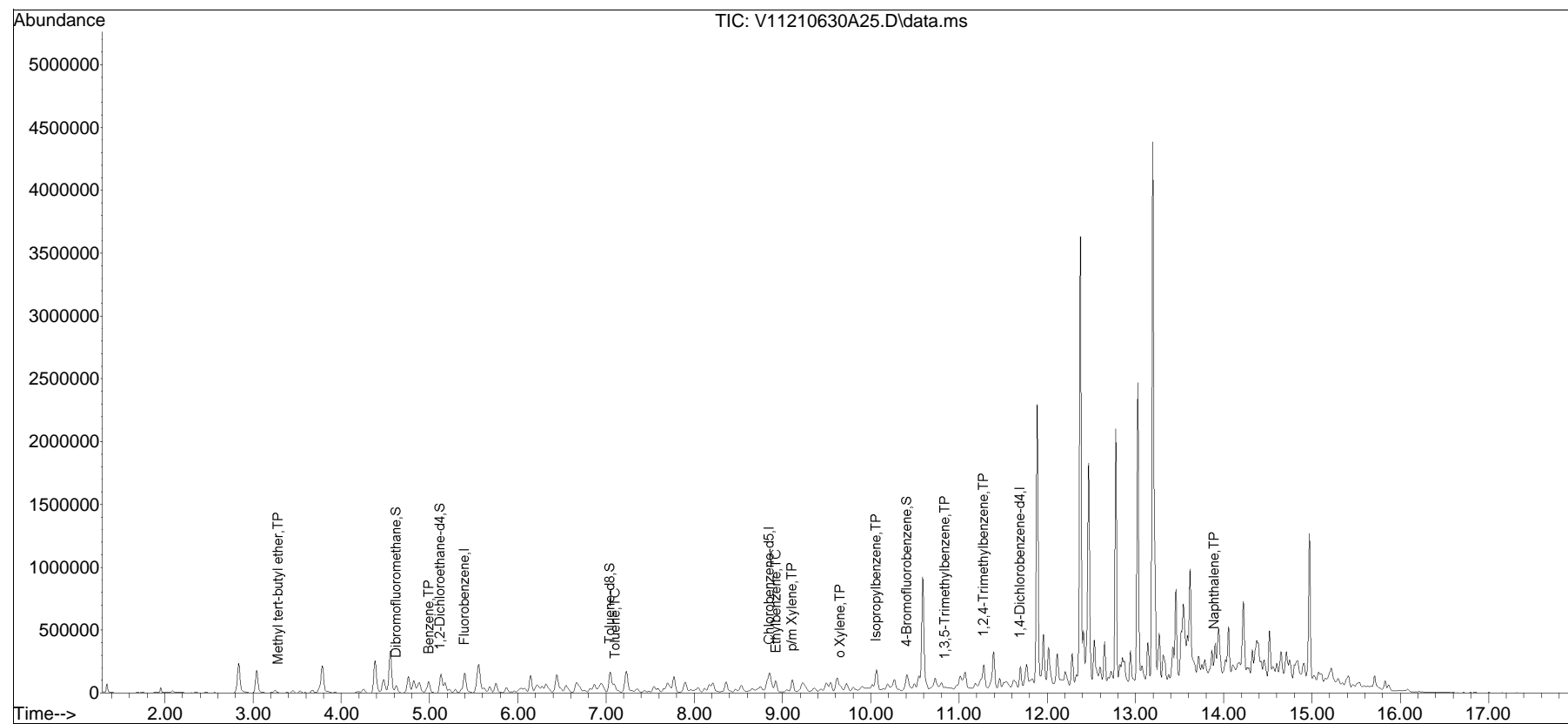


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A25.D
 Acq On : 30 Jun 2021 04:36 pm
 Operator : VOA111:AJK
 Sample : L2133823-10,31H,5.72,5,0.100,,A
 Misc : WG1519110,ICAL18049
 ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 30 17:08:25 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

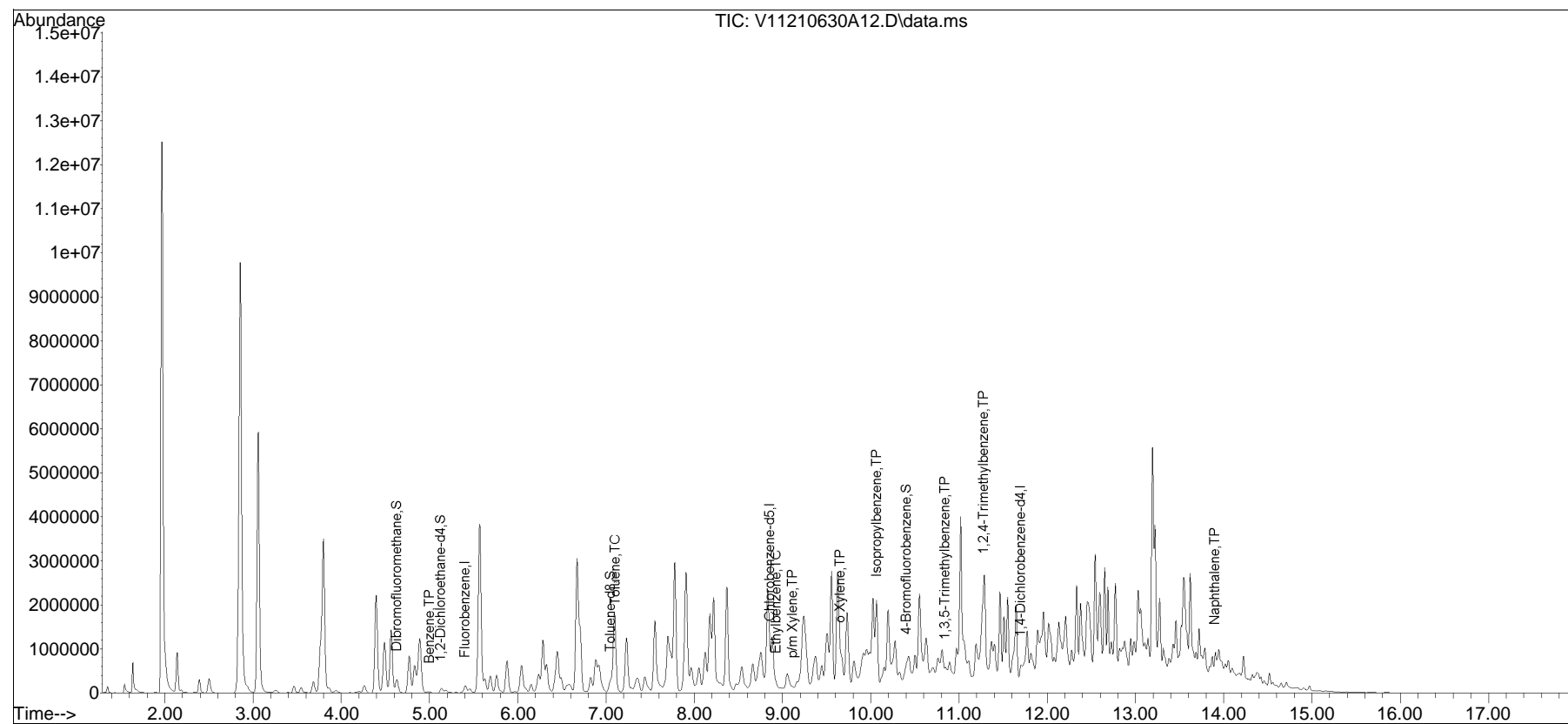


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A12.D
 Acq On : 30 Jun 2021 09:57 am
 Operator : VOA111:AJK
 Sample : L2133823-11,31,4.59,5,,B
 Misc : WG1518909,ICAL18049
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 30 16:00:55 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

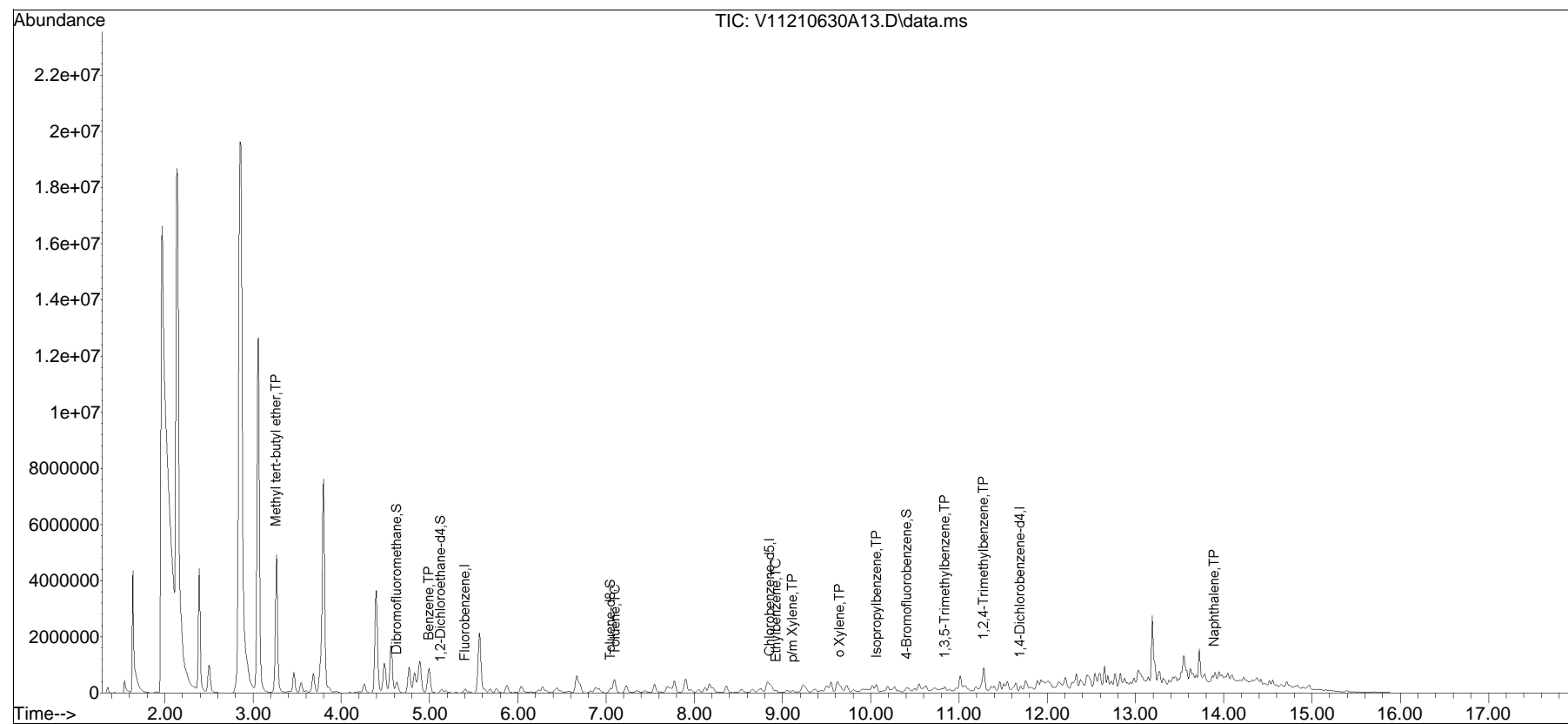


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A13.D
Acq On : 30 Jun 2021 10:22 am
Operator : VOA111:AJK
Sample : L2133823-12,31,5.82,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 30 16:01:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

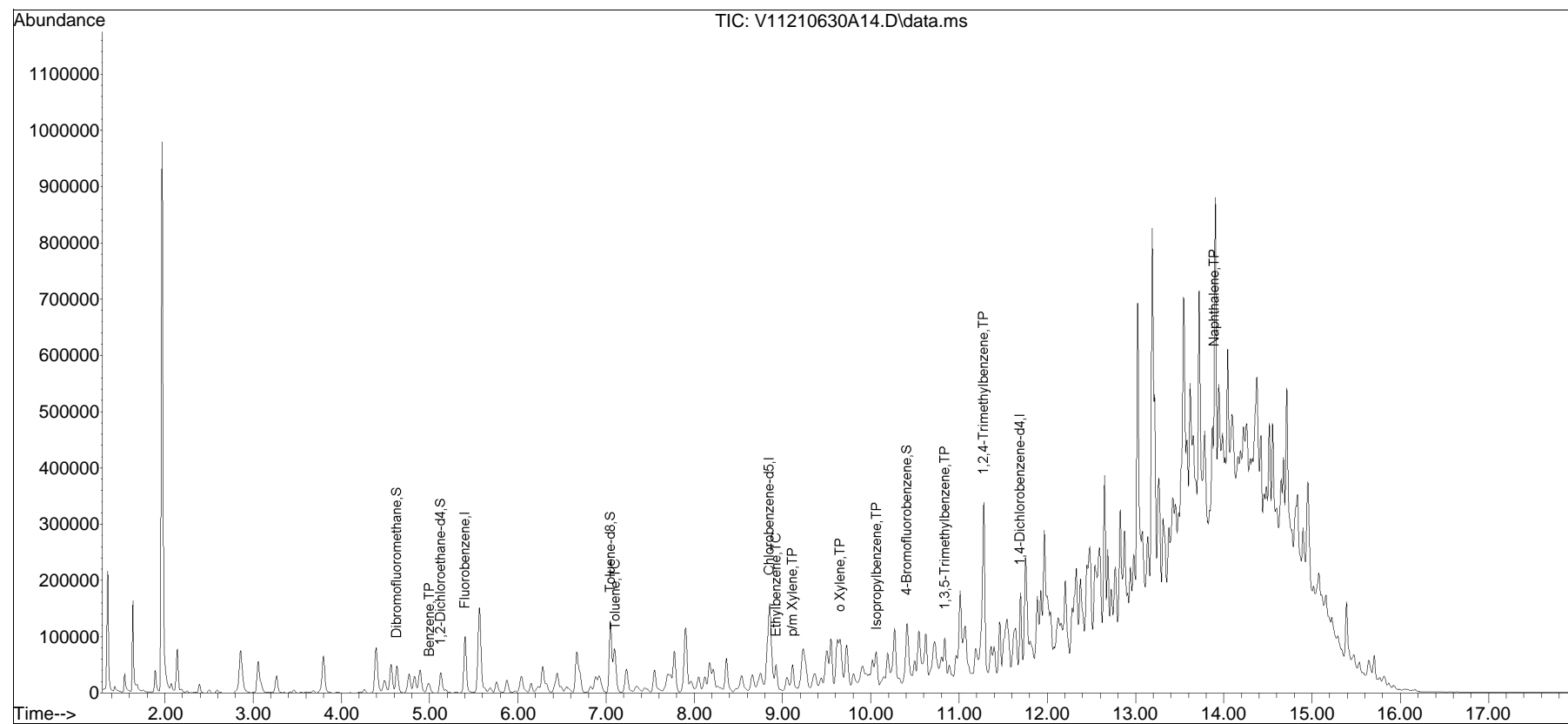


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A14.D
 Acq On : 30 Jun 2021 10:47 am
 Operator : VOA111:AJK
 Sample : L2133823-13,31,5.42,5,,B
 Misc : WG1518909,ICAL18049
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 30 15:57:56 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

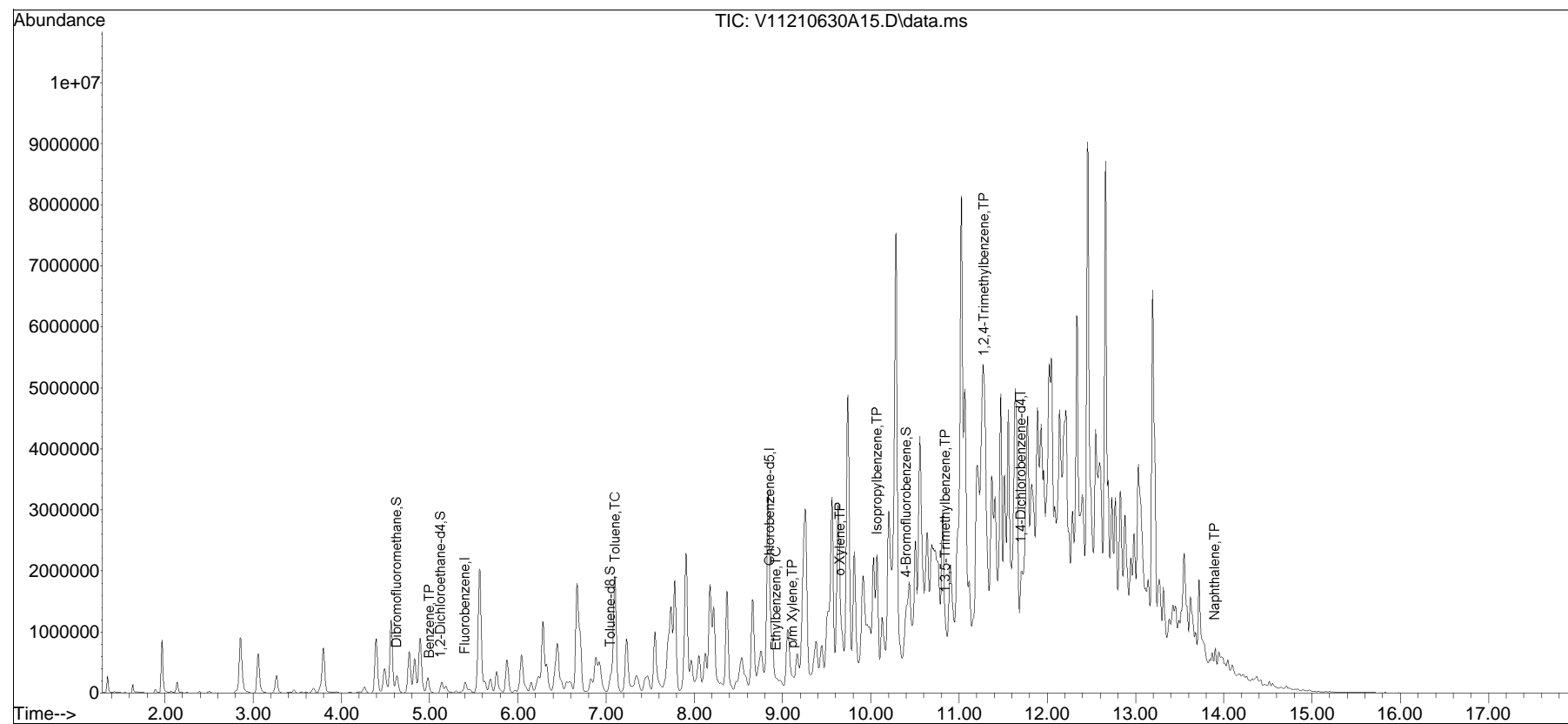


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
 Data File : V11210630A15.D
 Acq On : 30 Jun 2021 11:12 am
 Operator : VOA111:AJK
 Sample : L2133823-14,31,6.07,5,,B
 Misc : WG1518909,ICAL18049
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 30 16:02:15 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

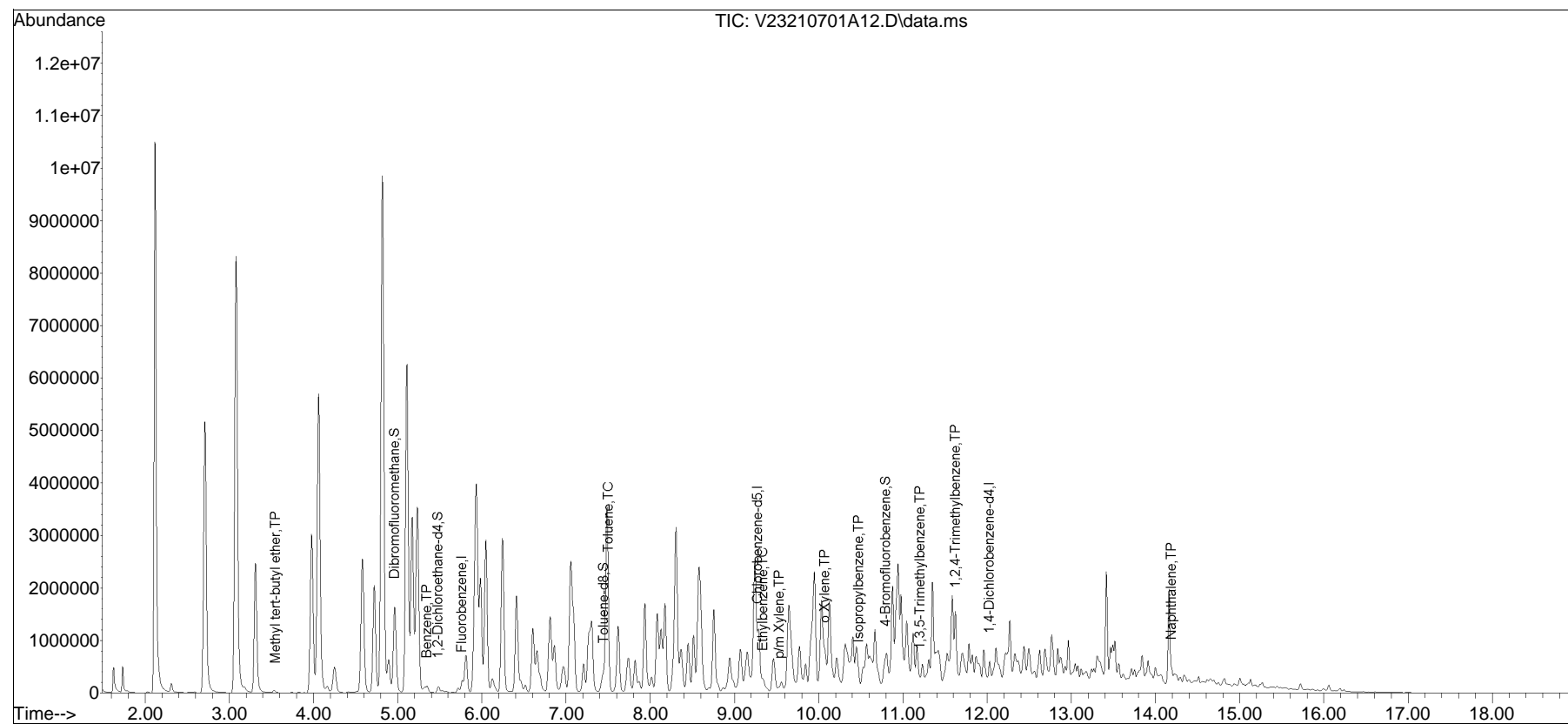


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210701A\
Data File : V23210701A12.D
Acq On : 01 Jul 2021 08:55 am
Operator : VOA123:JC
Sample : L2133823-17,31,4.48,5,,B
Misc : WG1519390,ICAL18108
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 01 11:16:05 2021
Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V23210701A01.D•

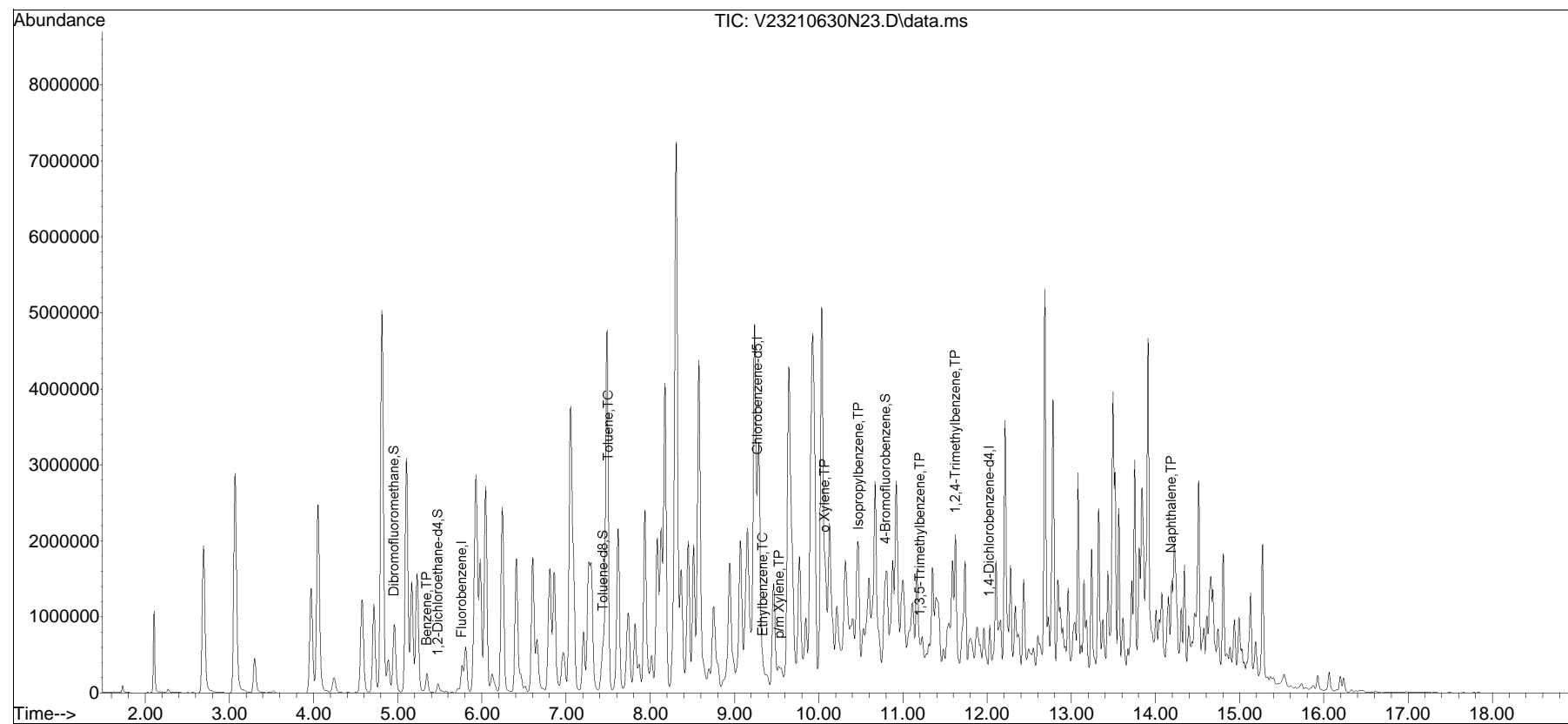


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210630N\
Data File : V23210630N23.D
Acq On : 01 Jul 2021 01:29 am
Operator : VOA123:JC
Sample : L2133823-19,31H,3.86,5,0.100,,A
Misc : WG1519270,ICAL18048
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 01 06:17:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210630N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30N\V23210630N01.D•

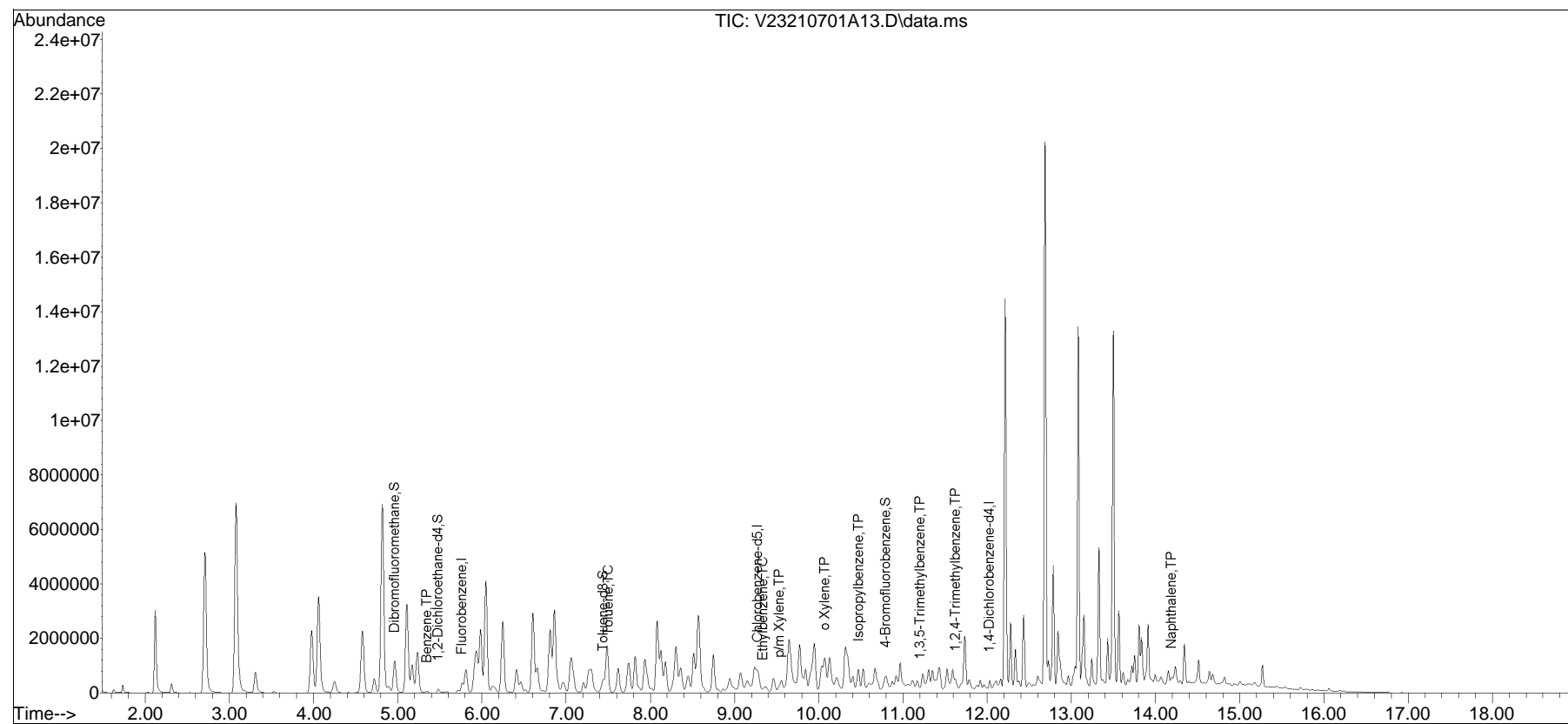


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210701A\
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 Acq On : 01 Jul 2021 09:20 am
 Operator : VOA123:JC
 Sample : L2133823-20,31,3.07,5,,B
 Misc : WG1519390,ICAL18108
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 11:25:24 2021
 Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 29 14:55:56 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V23210701A01.D•





ANALYTICAL REPORT

Lab Number:	L2134200
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:	07/28/21

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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: L2134200

Report Date: 07/28/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134200-01	PB128-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 07:50	06/23/21
L2134200-02	PB128-13-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:10	06/23/21
L2134200-03	PB128-16-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:20	06/23/21
L2134200-04	PB129-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:00	06/23/21
L2134200-05	PB129-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:15	06/23/21
L2134200-06	PB129-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:25	06/23/21
L2134200-07	PB129-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:30	06/23/21
L2134200-08	PB129-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:40	06/23/21
L2134200-09	PB129-14-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:00	06/23/21
L2134200-10	PB129-15-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:10	06/23/21
L2134200-11	PB129-17-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:25	06/23/21
L2134200-12	PB84-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:10	06/23/21
L2134200-13	PB84-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:25	06/23/21
L2134200-14	PB84-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:30	06/23/21
L2134200-15	PB84-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:45	06/23/21
L2134200-16	PB84-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:25	06/23/21
L2134200-17	PB84-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:40	06/23/21
L2134200-18	PB84-07-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:45	06/23/21
L2134200-19	PB84-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:55	06/23/21
L2134200-20	FB-210623-1	WATER	PHILADELPHIA, PA	06/23/21 12:00	06/23/21
L2134200-21	FB-210623-2	WATER	PHILADELPHIA, PA	06/23/21 14:00	06/23/21
L2134200-22	TB	WATER	PHILADELPHIA, PA	06/23/21 00:00	06/23/21
L2134200-23	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:50	06/23/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

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: L2134200
Report Date: 07/28/21

Case Narrative (continued)

Report Revision

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-04 and -23.

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-05, -08, -09, -10 and -11.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2134200-01 and -05D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); 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.

L2134200-04: 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.

L2134200-04: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (30%) and the surrogate recovery for 4-bromofluorobenzene (184%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2134200-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-06 and -07: 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.

L2134200-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%);

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Case Narrative (continued)

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.

L2134200-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (197%); 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.

L2134200-14D and -18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2134200-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); 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.

L2134200-15D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-16: 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.

L2134200-16 and -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.

L2134200-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (227%); 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.

L2134200-18D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); 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.

L2134200-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); 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: L2134200
Report Date: 07/28/21

Case Narrative (continued)

PAHs

L2134200-04D, -05D, and -23D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2134200-05D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as 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:

Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative

Date: 07/28/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01
 Client ID: PB128-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 07:50
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 10:07
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00033	1
Benzene	ND		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	0.00097	J	mg/kg	0.0032	0.00091	1
o-Xylene	0.00077	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0017	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.00060	J	mg/kg	0.0032	0.00054	1
Naphthalene	0.0019	J	mg/kg	0.0065	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02
 Client ID: PB128-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 08:10
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 10:33
 Analyst: JC
 Percent Solids: 92%

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	0.00041	J	mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	0.00049	J	mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.00048	J	mg/kg	0.00087	0.00012	1
p/m-Xylene	0.0017		mg/kg	0.0017	0.00049	1
o-Xylene	0.0026		mg/kg	0.00087	0.00025	1
Xylenes, Total	0.0043		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	0.0025		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	0.0022		mg/kg	0.0017	0.00029	1
Naphthalene	ND		mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03
 Client ID: PB128-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 08:20
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 11:00
 Analyst: JC
 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	0.00028	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	0.00060	J	mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	0.00034	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.00034	J	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
Naphthalene	ND		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
 Client ID: PB129-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 08:31
 Analyst: MV
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	1
Benzene	0.60		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	0.14		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	0.075	J	mg/kg	0.11	0.015	1
p/m-Xylene	0.20	J	mg/kg	0.22	0.061	1
o-Xylene	0.060	J	mg/kg	0.11	0.032	1
Xylenes, Total	0.26	J	mg/kg	0.11	0.032	1
Isopropylbenzene	0.042	J	mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.082	J	mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	0.16	J	mg/kg	0.22	0.036	1
Naphthalene	0.24	J	mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
 Client ID: PB129-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 09:49
 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	0.0030	0.00030	1
Benzene	0.25		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0036		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	0.00038	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0037		mg/kg	0.0030	0.00084	1
o-Xylene	0.0025		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.0062		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.0048		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0053		mg/kg	0.0030	0.00050	1
Naphthalene	0.0028	J	mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	184	Q	70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05
 Client ID: PB129-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 08:57
 Analyst: MV
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.19	0.019	1
Benzene	0.96		mg/kg	0.048	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.096	0.025	1
Toluene	0.45		mg/kg	0.096	0.052	1
1,2-Dibromoethane	ND		mg/kg	0.048	0.028	1
Ethylbenzene	3.6		mg/kg	0.096	0.014	1
p/m-Xylene	2.3		mg/kg	0.19	0.054	1
o-Xylene	3.8		mg/kg	0.096	0.028	1
Xylenes, Total	6.1		mg/kg	0.096	0.028	1
Isopropylbenzene	7.1		mg/kg	0.096	0.010	1
1,3,5-Trimethylbenzene	21.		mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	46.	E	mg/kg	0.19	0.032	1
Naphthalene	13.		mg/kg	0.38	0.062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05 D
 Client ID: PB129-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 10:15
 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						
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1,2,4-Trimethylbenzene	44.		mg/kg	0.38	0.064	2
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06
 Client ID: PB129-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 11:26
 Analyst: JC
 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	0.0018	0.00018	1
Benzene	0.0084		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.00036	J	mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0018		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0018		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.0032		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.61	E	mg/kg	0.0018	0.00030	1
Naphthalene	0.090		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06
 Client ID: PB129-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 20:49
 Analyst: JC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	ND		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	ND		mg/kg	0.046	0.0066	1
p/m-Xylene	ND		mg/kg	0.093	0.026	1
o-Xylene	ND		mg/kg	0.046	0.014	1
Xylenes, Total	ND		mg/kg	0.046	0.014	1
Isopropylbenzene	ND		mg/kg	0.046	0.0051	1
1,3,5-Trimethylbenzene	0.11		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.093	0.016	1
Naphthalene	0.10	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
 Client ID: PB129-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 11:53
 Analyst: JC
 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	0.00022	1
Benzene	0.42	E	mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.75	E	mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	0.041		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.045		mg/kg	0.0022	0.00062	1
o-Xylene	0.081		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.13		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0054		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.067		mg/kg	0.0022	0.00037	1
Naphthalene	0.010		mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
 Client ID: PB129-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 21:15
 Analyst: JC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	0.32		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	0.45		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.039	J	mg/kg	0.046	0.0065	1
p/m-Xylene	0.072	J	mg/kg	0.093	0.026	1
o-Xylene	0.066		mg/kg	0.046	0.013	1
Xylenes, Total	0.14	J	mg/kg	0.046	0.013	1
Isopropylbenzene	0.0094	J	mg/kg	0.046	0.0050	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.093	0.015	1
Naphthalene	0.033	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08 D2
 Client ID: PB129-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 10:41
 Analyst: JC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.4	0.24	25
Benzene	ND		mg/kg	0.59	0.20	25
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	25
Toluene	360	E	mg/kg	1.2	0.64	25
1,2-Dibromoethane	ND		mg/kg	0.59	0.35	25
Ethylbenzene	230		mg/kg	1.2	0.17	25
p/m-Xylene	1800	E	mg/kg	2.4	0.66	25
o-Xylene	450		mg/kg	1.2	0.34	25
Isopropylbenzene	14.		mg/kg	1.2	0.13	25
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	25
1,2,4-Trimethylbenzene	640	E	mg/kg	2.4	0.40	25
Naphthalene	42.		mg/kg	4.8	0.77	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08 D
 Client ID: PB129-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 00:46
 Analyst: JC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	250		mg/kg	4.8	2.6	100
p/m-Xylene	910		mg/kg	9.5	2.7	100
Xylenes, Total	1400		mg/kg	1.2	0.34	100
1,2,4-Trimethylbenzene	390		mg/kg	9.5	1.6	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
 Client ID: PB129-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 01:12
 Analyst: JC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0094	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.047	0.012	1
Toluene	ND		mg/kg	0.047	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.042	J	mg/kg	0.047	0.0066	1
p/m-Xylene	0.15		mg/kg	0.093	0.026	1
o-Xylene	0.016	J	mg/kg	0.047	0.014	1
Xylenes, Total	0.17	J	mg/kg	0.047	0.014	1
Isopropylbenzene	0.36		mg/kg	0.047	0.0051	1
1,3,5-Trimethylbenzene	3.0		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.093	0.016	1
Naphthalene	1.2		mg/kg	0.19	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
 Client ID: PB129-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:10
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 12:19
 Analyst: JC
 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	0.0021	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
Naphthalene	ND		mg/kg	0.0043	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11
 Client ID: PB129-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 12:46
 Analyst: KJD
 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	0.0024	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
Naphthalene	ND		mg/kg	0.0047	0.00077	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-12 D
 Client ID: PB84-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:10
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 01:38
 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	0.26	0.026	2
Benzene	ND		mg/kg	0.064	0.021	2
Toluene	ND		mg/kg	0.13	0.070	2
Ethylbenzene	ND		mg/kg	0.13	0.018	2
Isopropylbenzene	3.5		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.49		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	23.		mg/kg	0.26	0.043	2
Naphthalene	1.0		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	168	Q	70-130
Dibromofluoromethane	92		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-13
 Client ID: PB84-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 02:04
 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	0.11	0.011	1
Benzene	0.027		mg/kg	0.027	0.0091	1
Toluene	0.041	J	mg/kg	0.055	0.030	1
Ethylbenzene	0.042	J	mg/kg	0.055	0.0077	1
Isopropylbenzene	2.5		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.11	0.018	1
Naphthalene	0.81		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	197	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-14 D
 Client ID: PB84-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:30
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 02:30
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2
Benzene	ND		mg/kg	0.070	0.023	2
Toluene	ND		mg/kg	0.14	0.076	2
Ethylbenzene	ND		mg/kg	0.14	0.020	2
Isopropylbenzene	1.9		mg/kg	0.14	0.015	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.28	0.027	2
1,2,4-Trimethylbenzene	0.79		mg/kg	0.28	0.047	2
Naphthalene	0.55	J	mg/kg	0.56	0.091	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	92		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15 D2
 Client ID: PB84-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 11:07
 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	0.52	0.052	5
Benzene	2.1		mg/kg	0.13	0.043	5
Toluene	3.0		mg/kg	0.26	0.14	5
Ethylbenzene	15.		mg/kg	0.26	0.037	5
Isopropylbenzene	5.1		mg/kg	0.26	0.028	5
1,3,5-Trimethylbenzene	29.		mg/kg	0.52	0.050	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.52	0.087	5
Naphthalene	74.		mg/kg	1.0	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15 D
 Client ID: PB84-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 02:56
 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						
1,2,4-Trimethylbenzene	110		mg/kg	1.0	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-16
 Client ID: PB84-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 03:22
 Analyst: JC
 Percent Solids: 81%

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
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	0.011	J	mg/kg	0.072	0.010	1
Isopropylbenzene	0.63		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.039	J	mg/kg	0.14	0.024	1
Naphthalene	0.40		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	145	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-17
 Client ID: PB84-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:40
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 03:48
 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	0.099	0.0099	1
Benzene	0.047		mg/kg	0.025	0.0082	1
Toluene	ND		mg/kg	0.049	0.027	1
Ethylbenzene	0.014	J	mg/kg	0.049	0.0070	1
Isopropylbenzene	1.3		mg/kg	0.049	0.0054	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.099	0.0095	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.099	0.016	1
Naphthalene	0.26		mg/kg	0.20	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	227	Q	70-130
Dibromofluoromethane	94		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-18 D
 Client ID: PB84-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:45
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 04:14
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.065	5
Benzene	ND		mg/kg	0.16	0.054	5
Toluene	ND		mg/kg	0.32	0.18	5
Ethylbenzene	0.69		mg/kg	0.32	0.045	5
Isopropylbenzene	4.9		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.64	0.062	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.64	0.11	5
Naphthalene	1.2	J	mg/kg	1.3	0.21	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	131	Q	70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-19
 Client ID: PB84-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:55
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 13:12
 Analyst: KJD
 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	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00050	1
Ethylbenzene	0.00019	J	mg/kg	0.00091	0.00013	1
Isopropylbenzene	0.027		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.028		mg/kg	0.0018	0.00030	1
Naphthalene	0.049		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	169	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
 Client ID: FB-210623-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:23
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
 Client ID: FB-210623-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 09:06
 Analyst: NLK

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	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
 Client ID: FB-210623-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:29
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
 Client ID: FB-210623-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 09:34
 Analyst: NLK

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	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-22
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 00:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:36
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-22
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 00:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 15:15
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23 D2
 Client ID: PB129-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:50
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 11:33
 Analyst: JC
 Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.79	0.080	2.5
Benzene	0.17	J	mg/kg	0.20	0.066	2.5
1,2-Dichloroethane	ND		mg/kg	0.40	0.10	2.5
Toluene	0.33	J	mg/kg	0.40	0.22	2.5
1,2-Dibromoethane	ND		mg/kg	0.20	0.12	2.5
Ethylbenzene	ND		mg/kg	0.40	0.056	2.5
p/m-Xylene	440	E	mg/kg	0.79	0.22	2.5
o-Xylene	5.7		mg/kg	0.40	0.12	2.5
Isopropylbenzene	0.54		mg/kg	0.40	0.043	2.5
1,3,5-Trimethylbenzene	1.4		mg/kg	0.79	0.076	2.5
1,2,4-Trimethylbenzene	5.4		mg/kg	0.79	0.13	2.5
Naphthalene	1.1	J	mg/kg	1.6	0.26	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23 D
 Client ID: PB129-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:50
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 04:41
 Analyst: JC
 Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	340		mg/kg	1.6	0.44	5
Xylenes, Total	340		mg/kg	0.40	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 20-22 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/01/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-5					
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	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/02/21 08:05
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,08,15,23 Batch: WG1519723-10					
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	0.0096	J	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	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-09,12-18,23 Batch: WG1519723-5					
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	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1519895-5					
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	0.00019	J	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	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:39
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 20-21 Batch: WG1520399-5					
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	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 20-22 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-3 WG1519440-4								
Methyl tert butyl ether	85		88		66-130	3		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	90		89		70-130	1		30
Toluene	87		85		70-130	2		30
1,2-Dibromoethane	98		97		70-130	1		30
Ethylbenzene	89		88		70-130	1		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	90		89		70-130	1		30
Isopropylbenzene	94		89		70-130	5		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	90		86		70-130	5		30
Naphthalene	94		92		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	101		101		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-09,12-18,23 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	90		90		70-130	0		30
1,2-Dibromoethane	101		99		70-130	2		30
Ethylbenzene	92		93		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	91		91		70-130	0		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,08,15,23 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		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: L2134200
Report Date: 07/28/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		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: L2134200
Report Date: 07/28/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 20-21 Batch: WG1520399-3 WG1520399-4								
Methyl tert butyl ether	97		97		63-130	0		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	95		93		70-130	2		20
Ethylbenzene	96		94		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	97		96		70-130	1		20
1,3,5-Trimethylbenzene	96		96		64-130	0		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	110		110		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	105		106		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04 D
 Client ID: PB129-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/21 13:59
 Analyst: SZ
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	770	J	ug/kg	2100	260	10
Benzo(a)anthracene	400	J	ug/kg	1200	240	10
Benzo(a)pyrene	ND		ug/kg	1700	510	10
Benzo(b)fluoranthene	ND		ug/kg	1200	350	10
Chrysene	480	J	ug/kg	1200	220	10
Anthracene	ND		ug/kg	1200	410	10
Benzo(ghi)perylene	1200	J	ug/kg	1700	250	10
Fluorene	ND		ug/kg	2100	200	10
Phenanthrene	600	J	ug/kg	1200	250	10
Pyrene	780	J	ug/kg	1200	210	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	29		23-120
2-Fluorobiphenyl	25	Q	30-120
4-Terphenyl-d14	31		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05 D
 Client ID: PB129-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/21 14:23
 Analyst: SZ
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7200		ug/kg	5500	670	10
Benzo(a)anthracene	4700		ug/kg	3300	620	10
Benzo(a)pyrene	2900	J	ug/kg	4400	1300	10
Benzo(b)fluoranthene	4400		ug/kg	3300	920	10
Chrysene	9000		ug/kg	3300	570	10
Anthracene	2700	J	ug/kg	3300	1100	10
Benzo(ghi)perylene	1800	J	ug/kg	4400	640	10
Fluorene	2400	J	ug/kg	5500	530	10
Phenanthrene	12000		ug/kg	3300	670	10
Pyrene	9800		ug/kg	3300	540	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	46		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06
 Client ID: PB129-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 17:20
 Analyst: WR
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	370		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	19.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	22	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
 Client ID: PB129-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 17:43
 Analyst: WR
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08
 Client ID: PB129-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 18:07
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10000	E	ug/kg	170	21.	1
Benzo(a)anthracene	22	J	ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	19	J	ug/kg	100	18.	1
Anthracene	39	J	ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	120	J	ug/kg	170	17.	1
Phenanthrene	270		ug/kg	100	21.	1
Pyrene	93	J	ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	54		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08 D
 Client ID: PB129-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/21 14:47
 Analyst: SZ
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9400		ug/kg	870	110	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
 Client ID: PB129-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 18:30
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1400		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	19	J	ug/kg	180	17.	1
Phenanthrene	25	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	67		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
 Client ID: PB129-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:10
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 18:54
 Analyst: WR
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	22.	1
Benzo(a)anthracene	ND		ug/kg	110	20.	1
Benzo(a)pyrene	ND		ug/kg	140	44.	1
Benzo(b)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	19.	1
Anthracene	ND		ug/kg	110	35.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	110	22.	1
Pyrene	ND		ug/kg	110	18.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	65		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11
 Client ID: PB129-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:25
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/04/21 19:17
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	64		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
 Client ID: FB-210623-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/01/21 18:31
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 06/30/21 13:07

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	94		23-120
2-Fluorobiphenyl	98		15-120
4-Terphenyl-d14	114		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
 Client ID: FB-210623-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/01/21 18:51
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 06/30/21 13:07

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	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	106		15-120
4-Terphenyl-d14	127		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23 D
 Client ID: PB129-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:50
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/07/21 15:10
 Analyst: SZ
 Percent Solids: 59%

Extraction Method: EPA 3546
 Extraction Date: 07/02/21 20:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	500	J	ug/kg	1400	170	5
Benzo(a)anthracene	2600		ug/kg	840	160	5
Benzo(a)pyrene	4200		ug/kg	1100	340	5
Benzo(b)fluoranthene	4600		ug/kg	840	240	5
Chrysene	2900		ug/kg	840	140	5
Anthracene	420	J	ug/kg	840	270	5
Benzo(ghi)perylene	3500		ug/kg	1100	160	5
Fluorene	340	J	ug/kg	1400	140	5
Phenanthrene	1000		ug/kg	840	170	5
Pyrene	2700		ug/kg	840	140	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	48		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/01/21 18:11
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 06/30/21 13:07

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 20-21 Batch: WG1518888-1					
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
2-Fluorophenol	71		21-120
Phenol-d6	68		10-120
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	110		15-120
2,4,6-Tribromophenol	130	Q	10-120
4-Terphenyl-d14	128		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 07/04/21 12:54
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 04-11,23 Batch: WG1519998-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	99	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	99	28.
Chrysene	ND		ug/kg	99	17.
Anthracene	ND		ug/kg	99	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	99	20.
Pyrene	ND		ug/kg	99	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	70		25-120
Phenol-d6	70		10-120
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	76		10-136
4-Terphenyl-d14	78		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 20-21 Batch: WG1518888-2 WG1518888-3								
Naphthalene	85		94		40-140	10		40
Fluorene	92		103		40-140	11		40
Phenanthrene	86		95		40-140	10		40
Anthracene	93		104		40-140	11		40
Pyrene	92		100		26-127	8		40
Benzo(a)anthracene	87		99		40-140	13		40
Chrysene	92		101		40-140	9		40
Benzo(b)fluoranthene	97		100		40-140	3		40
Benzo(a)pyrene	83		105		40-140	23		40
Benzo(ghi)perylene	92		103		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	83		95		21-120
Phenol-d6	68		78		10-120
Nitrobenzene-d5	112		122	Q	23-120
2-Fluorobiphenyl	103		113		15-120
2,4,6-Tribromophenol	169	Q	187	Q	10-120
4-Terphenyl-d14	121		130		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-11,23 Batch: WG1519998-2 WG1519998-3								
Naphthalene	51		48		40-140	6		50
Benzo(a)anthracene	56		52		40-140	7		50
Benzo(a)pyrene	54		53		40-140	2		50
Benzo(b)fluoranthene	56		54		40-140	4		50
Chrysene	54		52		40-140	4		50
Anthracene	56		54		40-140	4		50
Benzo(ghi)perylene	54		53		40-140	2		50
Fluorene	56		52		40-140	7		50
Phenanthrene	56		54		40-140	4		50
Pyrene	57		54		35-142	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	56		53		25-120
Phenol-d6	56		53		10-120
Nitrobenzene-d5	55		52		23-120
2-Fluorobiphenyl	50		48		30-120
2,4,6-Tribromophenol	55		53		10-136
4-Terphenyl-d14	54		52		18-120



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01
 Client ID: PB128-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 07:50
 Date Received: 06/23/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	844		mg/kg	2.66	0.142	1	06/30/21 12:17	07/13/21 21:15	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02

Date Collected: 06/23/21 08:10

Client ID: PB128-13-SS01

Date Received: 06/23/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.88		mg/kg	2.08	0.112	1	06/30/21 12:17	07/13/21 21:19	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03

Date Collected: 06/23/21 08:20

Client ID: PB128-16-SS01

Date Received: 06/23/21

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	182		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:24	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04

Date Collected: 06/23/21 09:00

Client ID: PB129-02-SS01

Date Received: 06/23/21

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	175		mg/kg	2.49	0.133	1	06/30/21 12:17	07/13/21 21:38	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05
 Client ID: PB129-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
 Date Received: 06/23/21
 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	119		mg/kg	2.34	0.125	1	06/30/21 12:17	07/13/21 21:42	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06

Date Collected: 06/23/21 09:25

Client ID: PB129-04-SS01

Date Received: 06/23/21

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	2.92		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:46	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07

Date Collected: 06/23/21 09:30

Client ID: PB129-05-SS01

Date Received: 06/23/21

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	4.81		mg/kg	2.06	0.110	1	06/30/21 12:17	07/13/21 21:51	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08

Date Collected: 06/23/21 09:40

Client ID: PB129-06-SS01

Date Received: 06/23/21

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	4.44		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 21:55	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09

Date Collected: 06/23/21 10:00

Client ID: PB129-14-SS01

Date Received: 06/23/21

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	5.74		mg/kg	2.02	0.108	1	06/30/21 12:17	07/13/21 22:00	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
 Client ID: PB129-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:10
 Date Received: 06/23/21
 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	5.84		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 22:05	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11

Date Collected: 06/23/21 10:25

Client ID: PB129-17-SS01

Date Received: 06/23/21

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	36.1		mg/kg	2.11	0.113	1	06/30/21 12:17	07/13/21 22:09	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
 Client ID: FB-210623-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
 Date Received: 06/23/21
 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	06/29/21 05:20	07/22/21 20:02	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21

Date Collected: 06/23/21 14:00

Client ID: FB-210623-2

Date Received: 06/23/21

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	06/29/21 05:20	07/22/21 20:53	EPA 3005A	1,6020B	CD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23

Date Collected: 06/23/21 10:50

Client ID: PB129-01-SS01

Date Received: 06/23/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3920		mg/kg	6.81	0.365	2	06/30/21 12:17	07/13/21 22:14	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

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): 20-21 Batch: WG1517707-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 17:50	1,6020B	CD

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): 01-11,23 Batch: WG1518458-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/30/21 12:17	07/13/21 11:18	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 Batch: WG1517707-2								
Lead, Total	98		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 Batch: WG1518458-2 SRM Lot Number: D109-540								
Lead, Total	105		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

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): 20-21 QC Batch ID: WG1517707-3 QC Sample: L2134745-01 Client ID: MS Sample												
Lead, Total	ND	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-3 WG1518458-4 QC Sample: L2134209-04 Client ID: MS Sample												
Lead, Total	283	47.9	256	0	Q	308	53	Q	75-125	18		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134200

Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1517707-4 QC Sample: L2134745-01 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

**Lab Serial Dilution
 Analysis
 Batch Quality Control**

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-6 QC Sample: L2134209-04 Client ID: DUP Sample						
Lead, Total	283	316	mg/kg	12		20



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01

Date Collected: 06/23/21 07:50

Client ID: PB128-08-SS01

Date Received: 06/23/21

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	72.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02

Date Collected: 06/23/21 08:10

Client ID: PB128-13-SS01

Date Received: 06/23/21

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	92.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03

Date Collected: 06/23/21 08:20

Client ID: PB128-16-SS01

Date Received: 06/23/21

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	95.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-04

Date Collected: 06/23/21 09:00

Client ID: PB129-02-SS01

Date Received: 06/23/21

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	77.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05

Date Collected: 06/23/21 09:15

Client ID: PB129-03-SS01

Date Received: 06/23/21

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	85.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06

Date Collected: 06/23/21 09:25

Client ID: PB129-04-SS01

Date Received: 06/23/21

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	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-07

Date Collected: 06/23/21 09:30

Client ID: PB129-05-SS01

Date Received: 06/23/21

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	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-08

Date Collected: 06/23/21 09:40

Client ID: PB129-06-SS01

Date Received: 06/23/21

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	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-09

Date Collected: 06/23/21 10:00

Client ID: PB129-14-SS01

Date Received: 06/23/21

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	93.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-10

Date Collected: 06/23/21 10:10

Client ID: PB129-15-SS01

Date Received: 06/23/21

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	93.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-11

Date Collected: 06/23/21 10:25

Client ID: PB129-17-SS01

Date Received: 06/23/21

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	94.4		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-12

Date Collected: 06/23/21 13:10

Client ID: PB84-01-SS01

Date Received: 06/23/21

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	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-13
 Client ID: PB84-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:25
 Date Received: 06/23/21
 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	82.2		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-14

Date Collected: 06/23/21 13:30

Client ID: PB84-03-SS01

Date Received: 06/23/21

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	79.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15

Date Collected: 06/23/21 13:45

Client ID: PB84-04-SS01

Date Received: 06/23/21

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	83.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-16

Date Collected: 06/23/21 14:25

Client ID: PB84-05-SS01

Date Received: 06/23/21

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	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-17

Date Collected: 06/23/21 14:40

Client ID: PB84-06-SS01

Date Received: 06/23/21

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	82.8		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-18

Date Collected: 06/23/21 14:45

Client ID: PB84-07-SS01

Date Received: 06/23/21

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	79.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-19

Date Collected: 06/23/21 14:55

Client ID: PB84-08-SS01

Date Received: 06/23/21

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	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**SAMPLE RESULTS**

Lab ID: L2134200-23

Date Collected: 06/23/21 10:50

Client ID: PB129-01-SS01

Date Received: 06/23/21

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	58.6		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134200

Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-19,23 QC Batch ID: WG1516505-1 QC Sample: L2134200-01 Client ID: PB128-08-SS01						
Solids, Total	72.7	74.1	%	2		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**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(*)
L2134200-01A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-01B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-01E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-02A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-02B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-02E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-03A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-03B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-03E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-04B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-04E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-05A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-05B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-05E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-05F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-06A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-06B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-06E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-06F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-07A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-07B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-07E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-07F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-08A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-08B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-08E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-08F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-09B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-09E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-09F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-10B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-10E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-10F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-11B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-11E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-11F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-12B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-13B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-14B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-15A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-15B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-15C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-15D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-16B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-17A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-17B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-18A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-18B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-19A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-19B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-20A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-21A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134200**Project Number:** 200.00135.005.03**Report Date:** 07/28/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-21D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-22A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22C	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-22D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-23A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-23B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-23E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-23F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

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: L2134200
Report Date: 07/28/21

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: L2134200
Report Date: 07/28/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134200

Project Number: 200.00135.005.03

Report Date: 07/28/21

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-Terpeneol

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-Terpeneol; 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: 508-898-9220 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: 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 project-specific analyte list per attached
 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		
34200-01	PB128-08-5501	6/23	0750	S	TS
-02	PB128-13-5501		0810	S	TS
-03	PB128-16-5501		0820	S	TS
-04	PB129-02-5501		0900	S	TS
-05	PB129-03-5501		0915	S	TS
-06	PB129-04-5501		0925	S	TS
-07	PB129-05-5501		0930	S	TS
-08	PB129-06-5501		0940	S	TS
-09	PB129-1A-5501		1000	S	TS
-10	PB129-15-5501		1010	S	TS

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

Due Date: Time:

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

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
 PADEP Storage Tank Program

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
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<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"/>
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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"/>
<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 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)

Sample Specific Comments

TOTAL # BOTTLES

5
5
5
6
5
5
5
5
5
5

Container Type	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/23 14:02	<i>[Signature]</i>	6/23/21
<i>[Signature]</i>	6/23 22:00	<i>[Signature]</i>	6/23/21

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 6 OF 3

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
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Fax: Standard Rush (ONLY IF PRE-APPROVED);
 Email: William.Schmidt@ransomenv.com
 These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list per attached

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					
24200 -11	PB124-17-5501	6/23	1025	S	JS			
-12	PB84-01-5501	↓	1310	↓	↓			
-13	PB84-02-5501		1325					
-14	PB84-03-5501		1330					
-15	PB84-04-5501		1345					
-16	PB84-05-5501		1425					
-17	PB84-06-5501		1440					
-18	PB84-07-5501		1445					
-19	PB84-08-5501		1455					
-20	FB-210623-1		↓			1200	↓	↓

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Relinquished By:	Date/Time		Received By:		Date/Time														
	6/23 14:02				6/23/21 14:00														
	6/23/2022				6/23/21 18:10														

FORM NO 31-011-14-01 (rev 3-JAN-02)

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);

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 3894
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria
 PADEP Storage Tank Program

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	TOTAL # BOTTLES
<input checked="" 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"/>	Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do (Please specify below)	
<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"/>		4
<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"/>		4
<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"/>		4
<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"/>		4
<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"/>		4
<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"/>		4
<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"/>		8

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: 6/23 14:02
 Received By: Date/Time: 6/23/21 14:00
 6/23/2022 6/24/21 01:05



CHAIN OF CUSTODY

PAGE 3 OF 3

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: Standard Rush (ONLY IF PRE-APPROVED)
 Email: William.Schmidt@ransomenv.com
 These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

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		
34200 -21	FB-210623-2	6/23	1400	bu	TS
-22	TB				
-23	PB129-01-5501	6/23	1050	S	TS

FORM NO 080116/01
 (Rev. 3-10-12)

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

Date Rec'd in Lab: 6/24/21 ALPHA Job #: L2134200

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client info PO #: 3894
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria
 PADEP Storage Tank Program

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 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 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 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"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Container Type - - - - -
 Preservative - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/23 1402	<i>[Signature]</i>	6/23/21 1402
<i>[Signature]</i>	6/23 1800	<i>[Signature]</i>	6/23/21 1800
<i>[Signature]</i>	6/23 2030	<i>[Signature]</i>	6/23/21 2030

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:

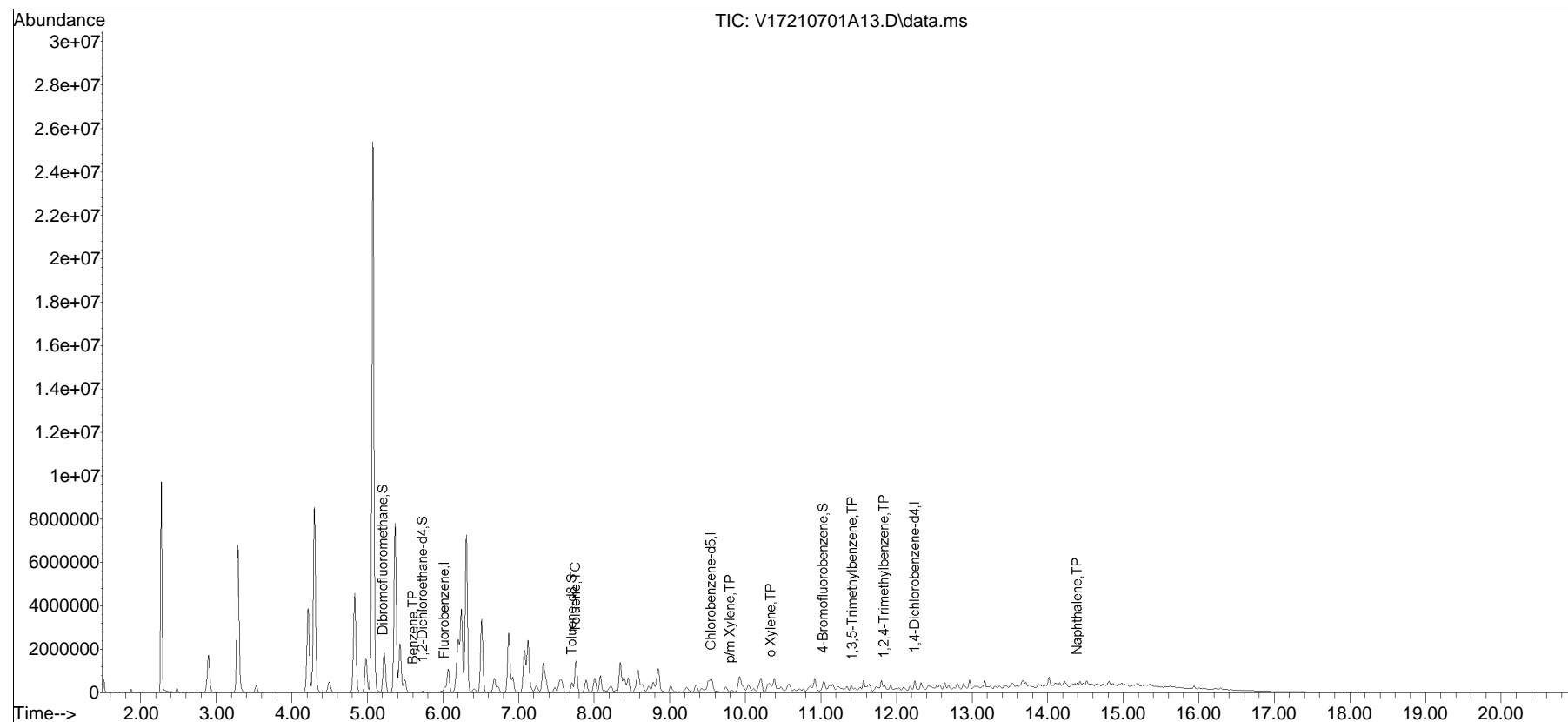
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA117\2021\210701A\
Data File : V17210701A13.D
Acq On : 01 Jul 2021 10:07 am
Operator : VOA117:JC
Sample : L2134200-01,31,4.22,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 12:43:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•

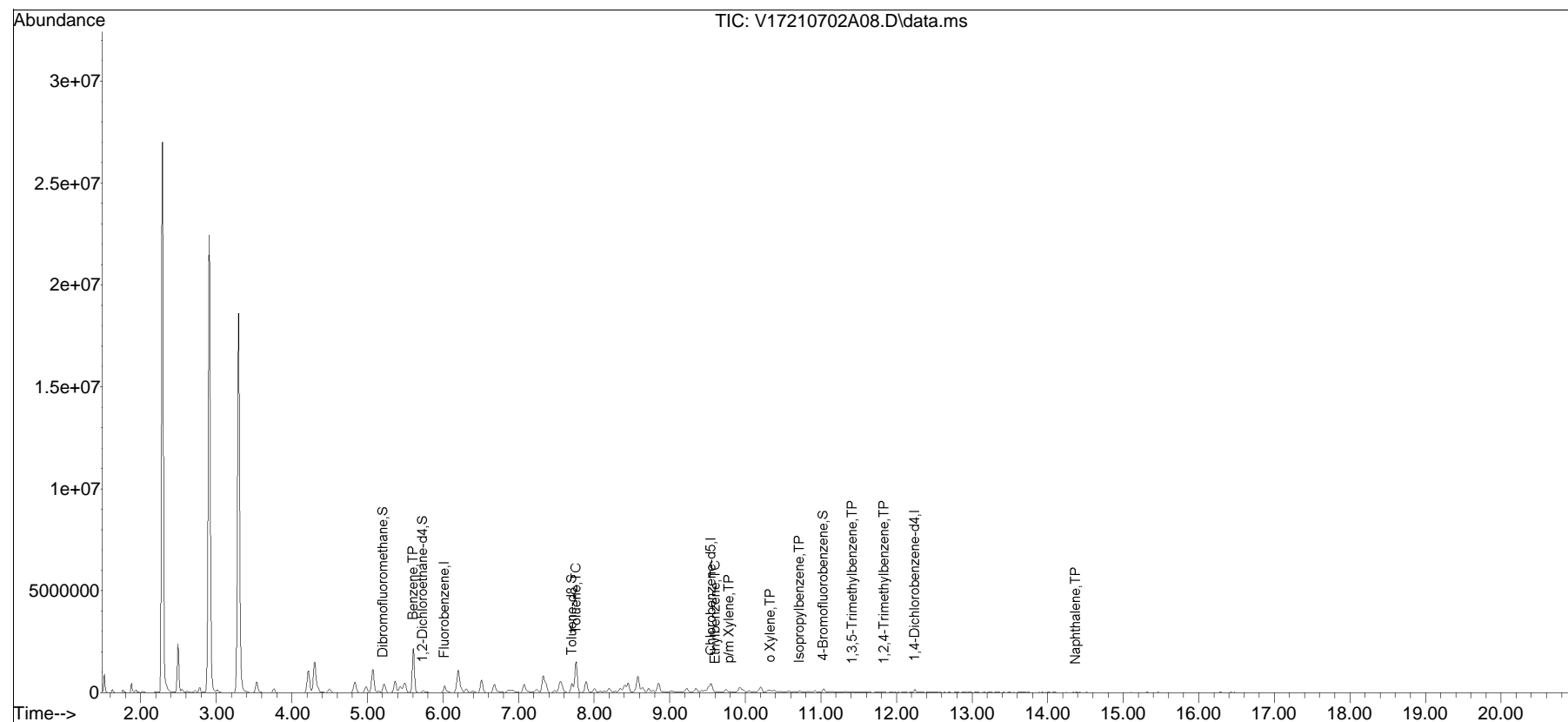


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A08.D
 Acq On : 02 Jul 2021 09:49 am
 Operator : VOA117:JC
 Sample : L2134200-04,31,4.30,5,,B
 Misc : WG1519895,ICAL18099
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 02 12:32:14 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

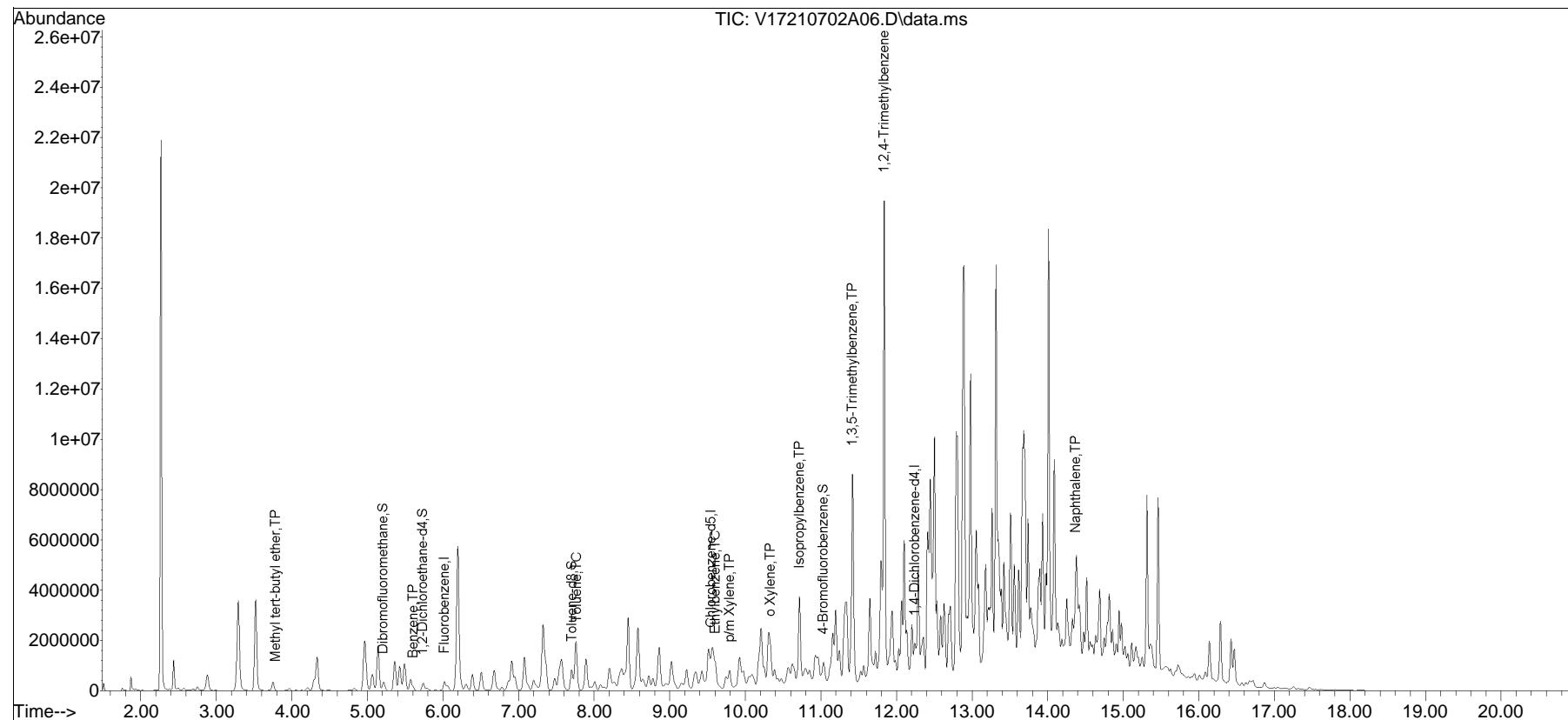


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A06.D
 Acq On : 02 Jul 2021 08:57 am
 Operator : VOA117:MV
 Sample : L2134200-05,31H,3.33,5,0.100,,A
 Misc : WG1519723,ICAL18099
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 02 09:28:16 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
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 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

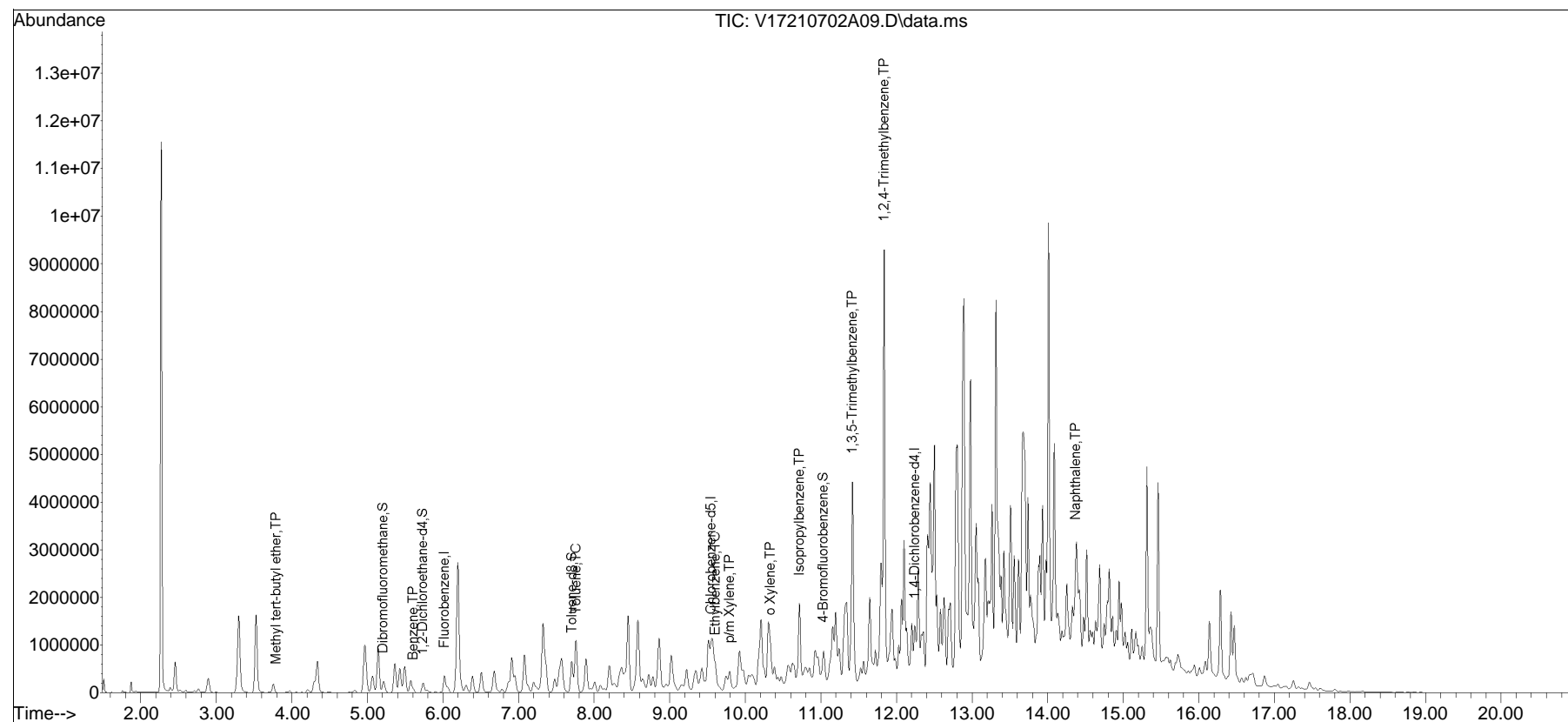


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A09.D
 Acq On : 02 Jul 2021 10:15 am
 Operator : VOA117:JC
 Sample : L2134200-05D,31H,3.33,5,0.050,,A
 Misc : WG1519723,ICAL18099
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 02 13:07:05 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

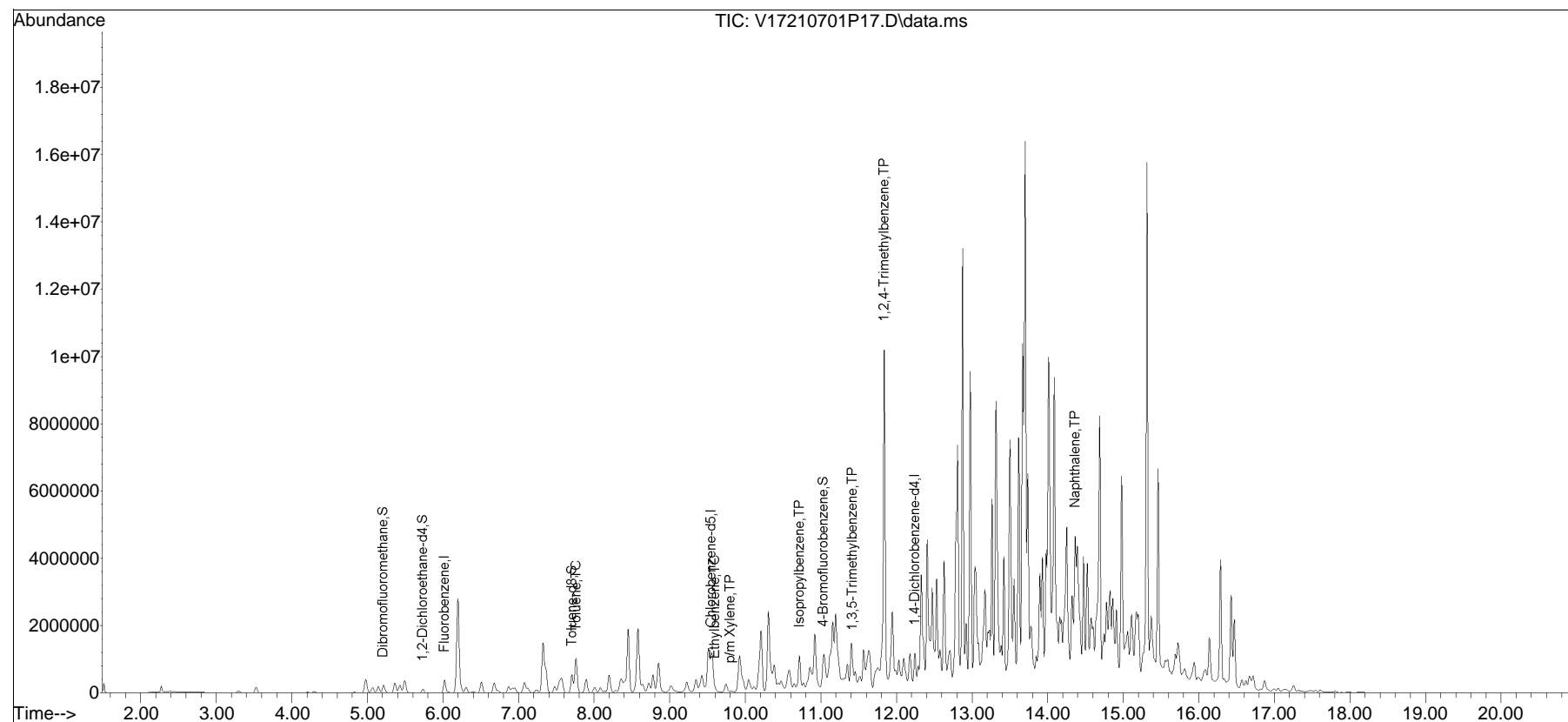


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P17.D
Acq On : 02 Jul 2021 01:38 am
Operator : VOA117:JC
Sample : L2134200-12D,31H,5.72,5,0.050,,A
Misc : WG1519723,ICAL18099
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 02 06:53:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

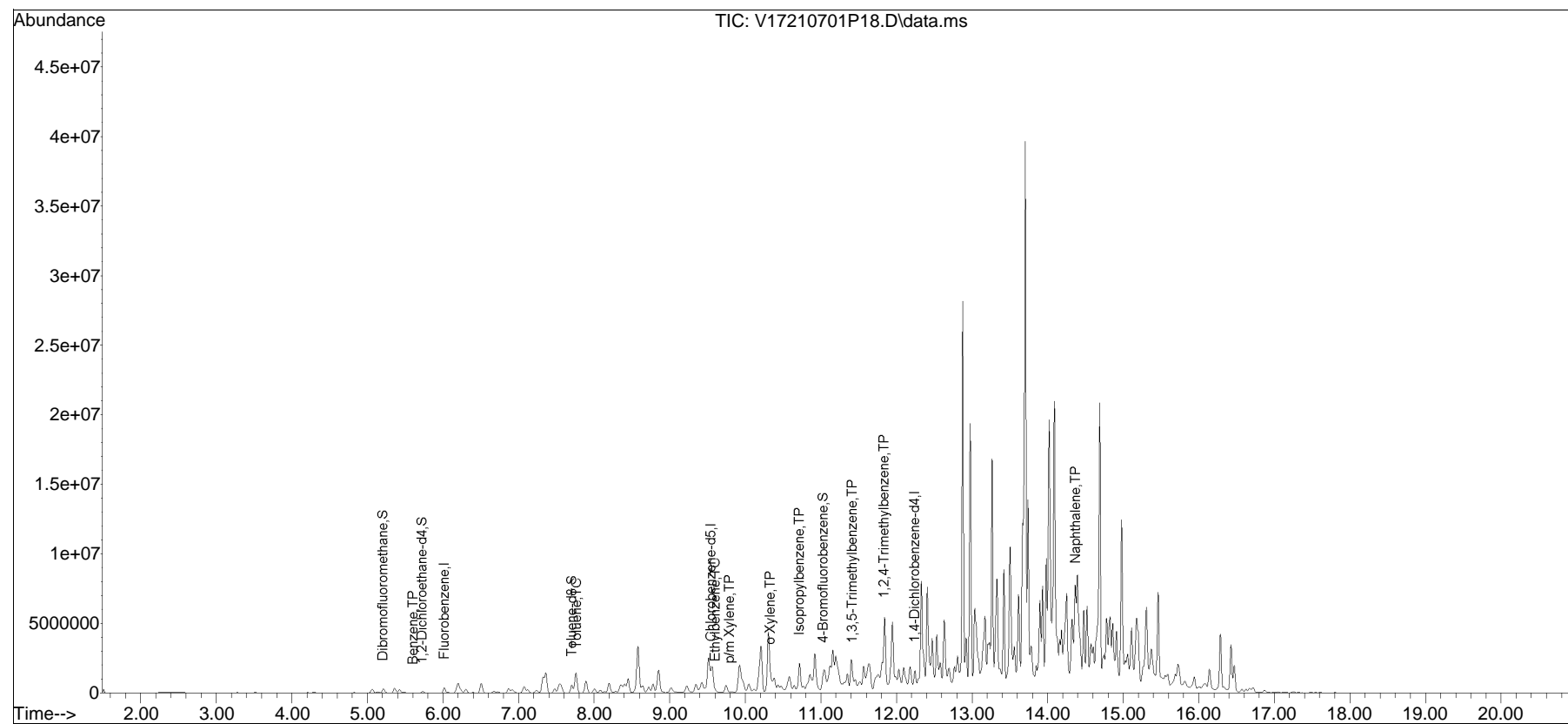


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
 Data File : V17210701P18.D
 Acq On : 02 Jul 2021 02:04 am
 Operator : VOA117:JC
 Sample : L2134200-13,31H,6.92,5,0.100,,A
 Misc : WG1519723,ICAL18099
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 02 07:04:06 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

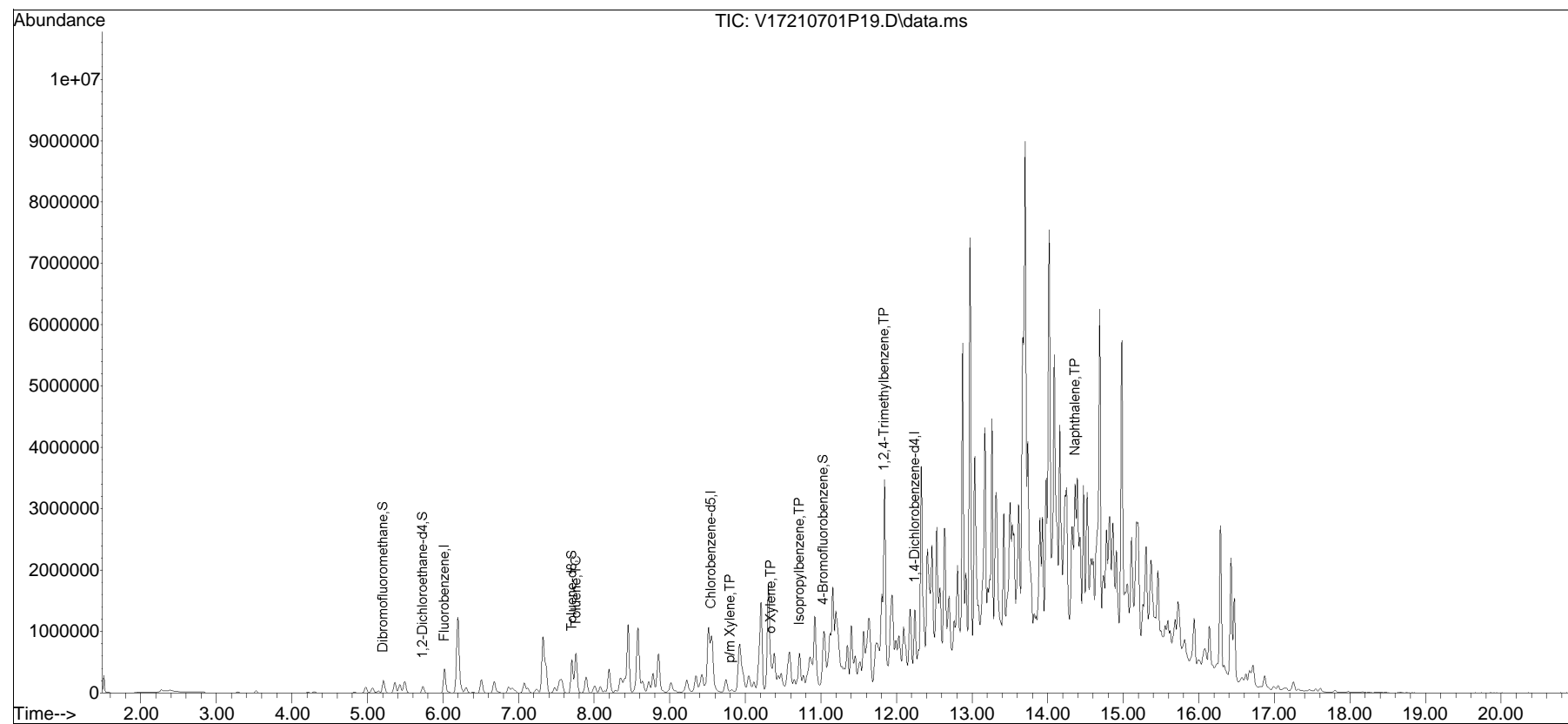


Quantitation Report (QT Reviewed)

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Data File : V17210701P19.D
Acq On : 02 Jul 2021 02:30 am
Operator : VOA117:JC
Sample : L2134200-14D,31H,5.58,5,0.050,,A
Misc : WG1519723,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 02 06:53:16 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

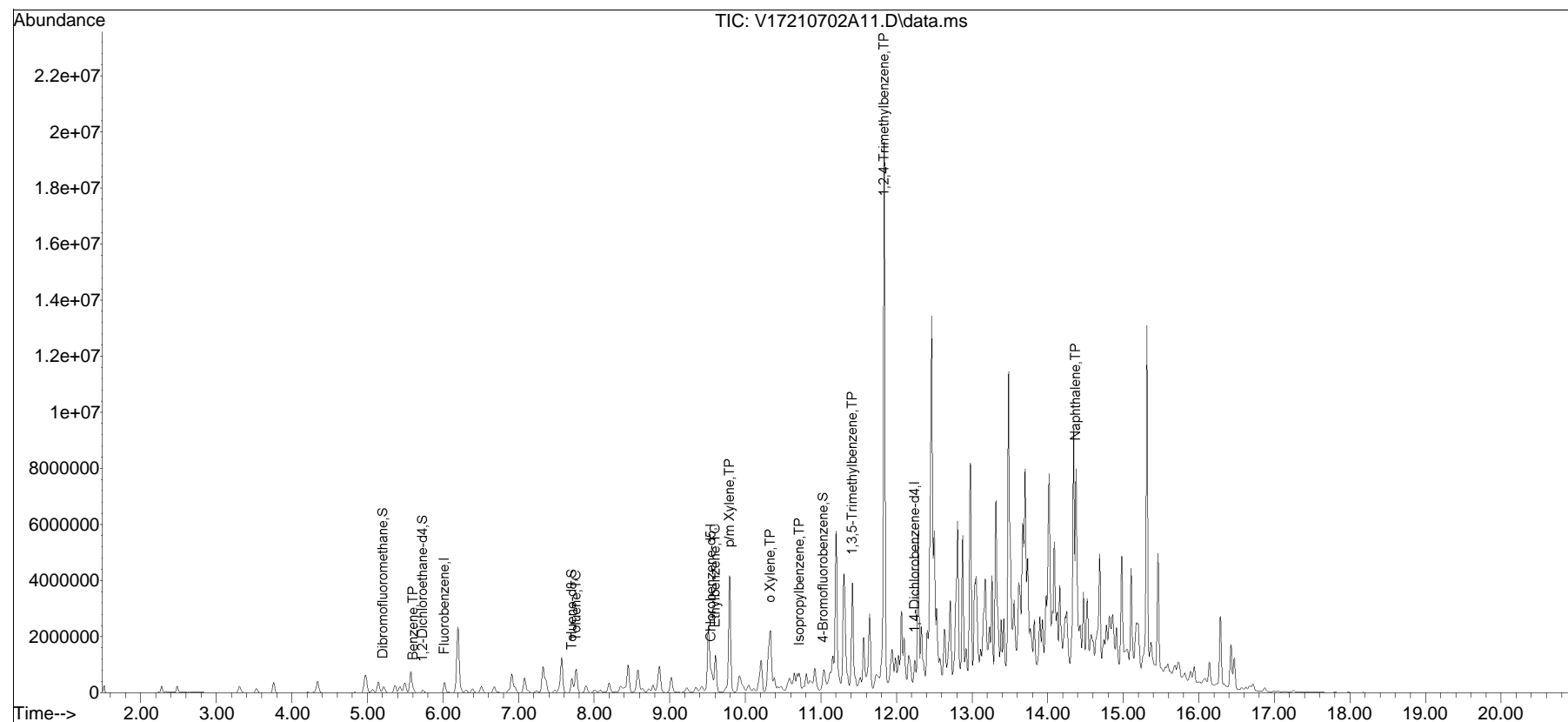


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A11.D
 Acq On : 02 Jul 2021 11:07 am
 Operator : VOA117:JC
 Sample : L2134200-15D2,31H,7.06,5,0.020,,A
 Misc : WG1519723,ICAL18099
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 02 12:15:47 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

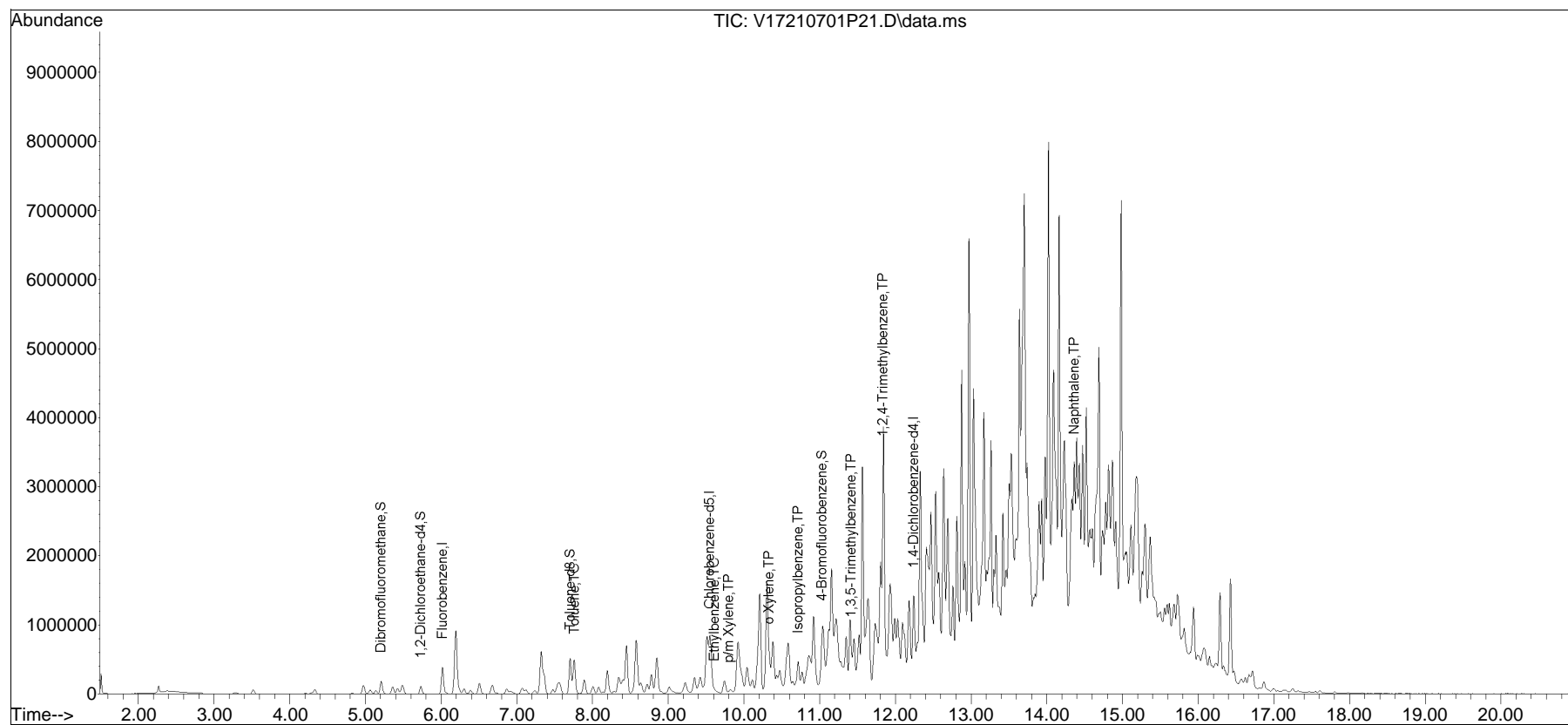


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P21.D
Acq On : 02 Jul 2021 03:22 am
Operator : VOA117:JC
Sample : L2134200-16,31H,5.06,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 07:06:11 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

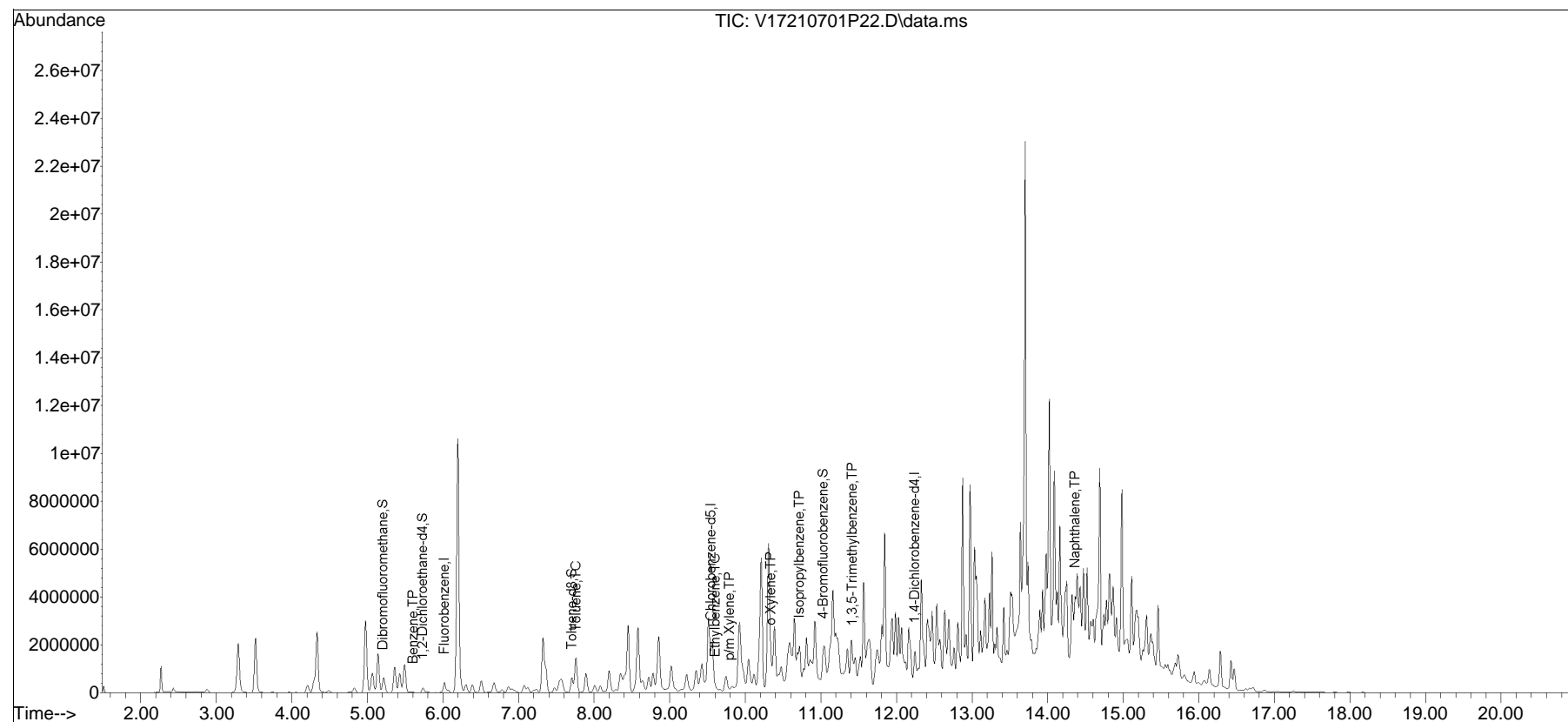


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P22.D
Acq On : 02 Jul 2021 03:48 am
Operator : VOA117:JC
Sample : L2134200-17,31H,7.74,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 07:06:39 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

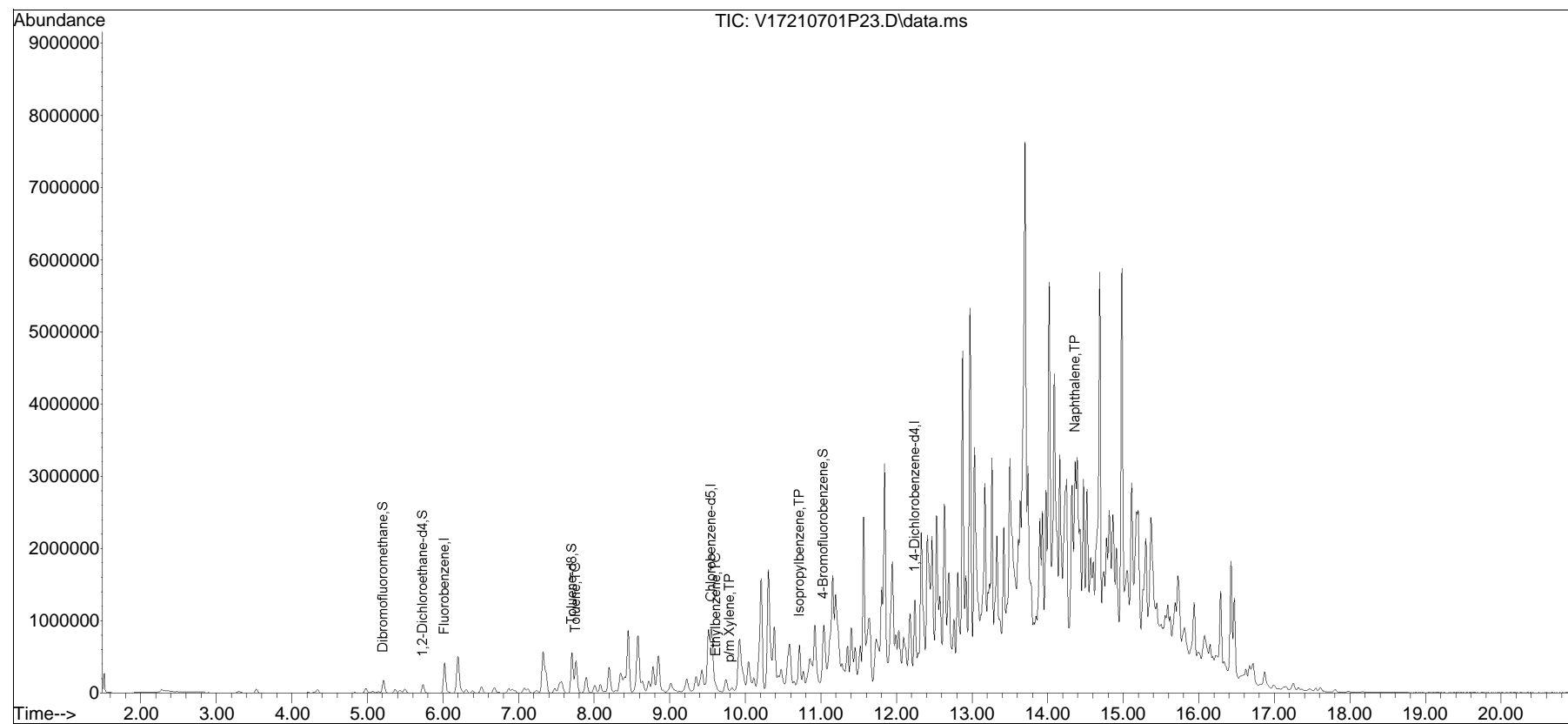


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P23.D
Acq On : 02 Jul 2021 04:14 am
Operator : VOA117:JC
Sample : L2134200-18D,31H,6.06,5,0.020,,A
Misc : WG1519723,ICAL18099
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 07:07:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

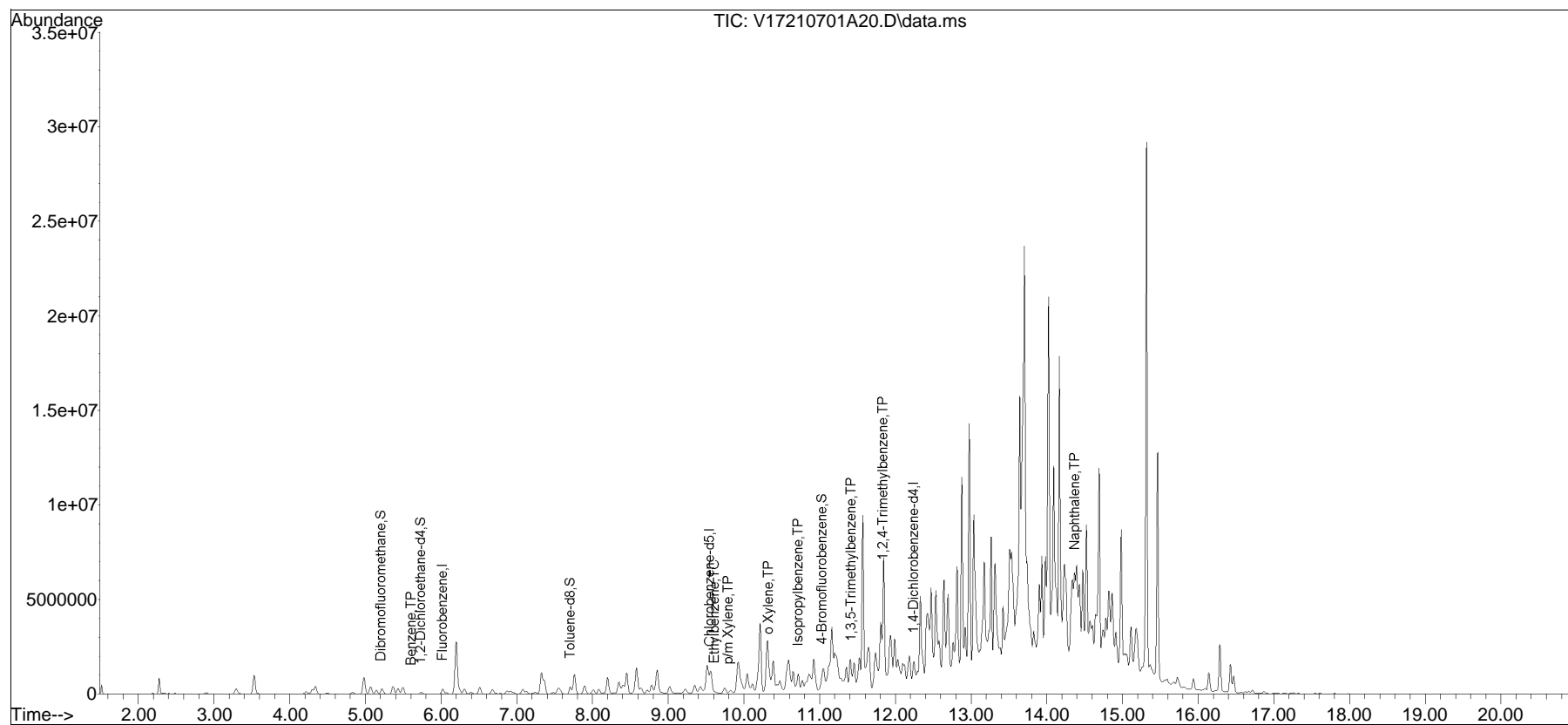


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701A\
Data File : V17210701A20.D
Acq On : 01 Jul 2021 01:12 pm
Operator : VOA117:KJD
Sample : L2134200-19,31,6.68,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 01 13:40:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•





ANALYTICAL REPORT

Lab Number:	L2134501
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:	07/07/21

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: L2134501

Report Date: 07/07/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-01	PB84-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:00	06/24/21
L2134501-02	PB84-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:20	06/24/21
L2134501-03	PB84-18-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:25	06/24/21
L2134501-04	PB84-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:35	06/24/21
L2134501-05	PB84-19-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:50	06/24/21
L2134501-06	PB84-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:00	06/24/21
L2134501-07	PB84-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:05	06/24/21
L2134501-08	PB42-01-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:00	06/24/21
L2134501-09	PB42-02-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:10	06/24/21
L2134501-10	PB42-03-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:25	06/24/21
L2134501-11	PB42-04-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:35	06/24/21
L2134501-12	PB42-05-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:40	06/24/21
L2134501-13	PB42-06-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:50	06/24/21
L2134501-14	PB42-07-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:00	06/24/21
L2134501-15	PB42-08-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:10	06/24/21
L2134501-16	PB42-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:30	06/24/21
L2134501-17	PB42-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:40	06/24/21
L2134501-18	PB42-11-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:45	06/24/21
L2134501-19	PB42-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:00	06/24/21
L2134501-20	PB42-13-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:15	06/24/21
L2134501-21	PB42-14-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:25	06/24/21
L2134501-22	PB42-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:40	06/24/21
L2134501-23	PB42-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 14:00	06/24/21
L2134501-24	FB-210624-1	WATER	PHILADELPHIA, PA	06/24/21 12:00	06/24/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-25	FB-210624-2	WATER	PHILADELPHIA, PA	06/24/21 14:10	06/24/21
L2134501-26	TB	WATER	PHILADELPHIA, PA	06/24/21 00:00	06/24/21
L2134501-27	DUP-9	SOIL	PHILADELPHIA, PA	06/24/21 08:05	06/24/21
L2134501-28	DUP-10	SOIL	PHILADELPHIA, PA	06/24/21 13:30	06/24/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

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: L2134501
Report Date: 07/07/21

Case Narrative (continued)

Report Revision

July 07, 2021: The Volatile Organics analyte list has been amended on L2134501-02 through -23, -27, and -28.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The following samples have surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2134501-01D2: 4-bromofluorobenzene (134%)
L2134501-04: 4-bromofluorobenzene (149%)
L2134501-05: 4-bromofluorobenzene (132%)
L2134501-08: 4-bromofluorobenzene (262%)
L2134501-09: 4-bromofluorobenzene (236%)
L2134501-10: 4-bromofluorobenzene (156%)
L2134501-11D: 4-bromofluorobenzene (184%)
L2134501-12: 4-bromofluorobenzene (246%)
L2134501-13: 4-bromofluorobenzene (303%)
L2134501-14D: 4-bromofluorobenzene (158%)
L2134501-15D: 4-bromofluorobenzene (205%)
L2134501-16: 4-bromofluorobenzene (907%)
L2134501-17: toluene-d8 (145%) and 4-bromofluorobenzene (197%)
L2134501-18: 4-bromofluorobenzene (299%)
L2134501-20D: toluene-d8 (143%) and 4-bromofluorobenzene (181%)
L2134501-21: 1,2-dichloroethane-d4 (157%), toluene-d8 (149%), and 4-bromofluorobenzene (578%)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Case Narrative (continued)

L2134501-22: 4-bromofluorobenzene (309%)

L2134501-23: 4-bromofluorobenzene (280%)

L2134501-27D: 4-bromofluorobenzene (148%)

L2134501-27D2: 4-bromofluorobenzene (134%)

L2134501-04: 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.

L2134501-07: 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 analyses which have been attributed to vial discrepancies.

L2134501-07: The internal standard (IS) response for chlorobenzene-d5 (325%) and the surrogate recoveries for toluene-d8 (43%) and 4-bromofluorobenzene (3503%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report.

L2134501-09, -10, -12, -17, -18, and -22: 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.

L2134501-11D, -14D, -15D, and -20D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

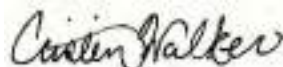
L2134501-16 and -21: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

Microextractables

The WG1517669-2 LCS recovery for 1,2,3-trichloropropane (124%), associated with L2134501-24 through -26, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

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: 07/07/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01 D2
 Client ID: PB84-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 11:59
 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	0.62	0.062	5
Benzene	ND		mg/kg	0.15	0.051	5
Toluene	ND		mg/kg	0.31	0.17	5
Ethylbenzene	0.42		mg/kg	0.31	0.043	5
Isopropylbenzene	0.61		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.62	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.62	0.10	5
Naphthalene	13.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01 D
 Client ID: PB84-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 22:35
 Analyst: JC
 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	120		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-02
 Client ID: PB84-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:20
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 21:42
 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	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-03
 Client ID: PB84-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:25
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 22:08
 Analyst: JC
 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	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00061	J	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
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04
 Client ID: PB84-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:35
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 23:01
 Analyst: JC
 Percent Solids: 81%

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	0.035	0.012	1
Toluene	ND		mg/kg	0.070	0.038	1
Ethylbenzene	0.060	J	mg/kg	0.070	0.0099	1
Isopropylbenzene	0.024	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.14	0.023	1
Naphthalene	0.62		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04
 Client ID: PB84-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:35
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 12:25
 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	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	0.00033	J	mg/kg	0.00096	0.00014	1
Isopropylbenzene	0.00039	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.050		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0019	0.00032	1
Naphthalene	0.0067		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05
 Client ID: PB84-19-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:50
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 12:51
 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	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0025		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00034	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-06
 Client ID: PB84-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/01/21 23:53
 Analyst: JC
 Percent Solids: 80%

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	0.010	1
Toluene	ND		mg/kg	0.064	0.035	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
Isopropylbenzene	0.13		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.1		mg/kg	0.13	0.021	1
Naphthalene	4.2		mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
 Client ID: PB84-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:05
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 00:19
 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	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.13		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.020	1
Naphthalene	0.23	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
 Client ID: PB84-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:05
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 13:17
 Analyst: LAC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0012	J	mg/kg	0.0018	0.00018	1
Benzene	0.00016	J	mg/kg	0.00044	0.00015	1
Toluene	0.00050	J	mg/kg	0.00088	0.00048	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
Isopropylbenzene	0.32	E	mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1
Naphthalene	0.0014	J	mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	43	Q	70-130
4-Bromofluorobenzene	3500	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-08
 Client ID: PB42-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 13:43
 Analyst: LAC
 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	0.0023	0.00023	1
Benzene	0.0010		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	0.00032	J	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.042		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00086	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0082		mg/kg	0.0023	0.00038	1
Naphthalene	0.0085		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	262	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-09
 Client ID: PB42-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:10
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 16:19
 Analyst: KJD
 Percent Solids: 77%

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	ND		mg/kg	0.037	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	ND		mg/kg	0.075	0.010	1
Isopropylbenzene	2.1		mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.15	0.025	1
Naphthalene	0.75		mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	236	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-10
 Client ID: PB42-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:25
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 16:45
 Analyst: KJD
 Percent Solids: 80%

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	ND		mg/kg	0.061	0.0085	1
Isopropylbenzene	0.65		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.048	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.12	0.020	1
Naphthalene	0.26		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	156	Q	70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-11 D
 Client ID: PB42-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:35
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 15:01
 Analyst: KJD
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.84	0.084	5
Benzene	ND		mg/kg	0.21	0.070	5
Toluene	ND		mg/kg	0.42	0.23	5
Ethylbenzene	0.12	J	mg/kg	0.42	0.059	5
Isopropylbenzene	10.		mg/kg	0.42	0.046	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.84	0.081	5
1,2,4-Trimethylbenzene	0.55	J	mg/kg	0.84	0.14	5
Naphthalene	ND		mg/kg	1.7	0.27	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	184	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-12
 Client ID: PB42-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:40
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 17:11
 Analyst: KJD
 Percent Solids: 79%

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	0.033	0.011	1
Toluene	0.047	J	mg/kg	0.065	0.036	1
Ethylbenzene	ND		mg/kg	0.065	0.0092	1
Isopropylbenzene	1.0		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.13	0.022	1
Naphthalene	0.18	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	246	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-13
 Client ID: PB42-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:50
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 14:09
 Analyst: LAC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00026	J	mg/kg	0.0021	0.00021	1
Benzene	0.00033	J	mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.066		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.00089	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.012		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	303	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14 D
 Client ID: PB42-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 15:27
 Analyst: KJD
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.029	2
Benzene	ND		mg/kg	0.072	0.024	2
Toluene	ND		mg/kg	0.14	0.079	2
Ethylbenzene	0.067	J	mg/kg	0.14	0.020	2
Isopropylbenzene	0.59		mg/kg	0.14	0.016	2
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.29	0.028	2
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.29	0.048	2
Naphthalene	0.52	J	mg/kg	0.58	0.094	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	158	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15 D
 Client ID: PB42-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:10
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 15:53
 Analyst: KJD
 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	0.22	0.022	2
Benzene	0.028	J	mg/kg	0.056	0.019	2
Toluene	0.072	J	mg/kg	0.11	0.061	2
Ethylbenzene	1.2		mg/kg	0.11	0.016	2
Isopropylbenzene	3.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	1.3		mg/kg	0.22	0.037	2
Naphthalene	0.88		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	205	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
 Client ID: PB42-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 17:37
 Analyst: KJD
 Percent Solids: 81%

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	0.78		mg/kg	0.037	0.012	1
Toluene	0.078		mg/kg	0.073	0.040	1
Ethylbenzene	0.21		mg/kg	0.073	0.010	1
Isopropylbenzene	0.52		mg/kg	0.073	0.0080	1
1,3,5-Trimethylbenzene	0.24		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.7		mg/kg	0.15	0.024	1
Naphthalene	0.74		mg/kg	0.29	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
 Client ID: PB42-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/05/21 22:41
 Analyst: MV
 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	0.14		mg/kg	0.00053	0.00018	1
Toluene	0.0050		mg/kg	0.0010	0.00057	1
Ethylbenzene	0.017		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.30		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.045		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	1.7	E	mg/kg	0.0021	0.00035	1
Naphthalene	0.033		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	907	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-17
 Client ID: PB42-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:40
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 14:30
 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	0.14	0.014	1
Benzene	0.030	J	mg/kg	0.034	0.011	1
Toluene	0.064	J	mg/kg	0.068	0.037	1
Ethylbenzene	0.049	J	mg/kg	0.068	0.0097	1
Isopropylbenzene	1.1		mg/kg	0.068	0.0075	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.14	0.023	1
Naphthalene	0.18	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	145	Q	70-130
4-Bromofluorobenzene	197	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-18
 Client ID: PB42-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:45
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 14:55
 Analyst: MV
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.23	0.023	1
Benzene	ND		mg/kg	0.057	0.019	1
Toluene	0.068	J	mg/kg	0.11	0.062	1
Ethylbenzene	0.042	J	mg/kg	0.11	0.016	1
Isopropylbenzene	1.8		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.23	0.038	1
Naphthalene	2.1		mg/kg	0.46	0.074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	299	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-19
 Client ID: PB42-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 17:26
 Analyst: MV
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00032	J	mg/kg	0.0020	0.00020	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
Naphthalene	ND		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-20 D
 Client ID: PB42-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:15
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 14:05
 Analyst: MV
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	2
Benzene	0.062		mg/kg	0.061	0.020	2
Toluene	ND		mg/kg	0.12	0.066	2
Ethylbenzene	0.069	J	mg/kg	0.12	0.017	2
Isopropylbenzene	2.2		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	0.026	J	mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.098	J	mg/kg	0.24	0.041	2
Naphthalene	0.30	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	143	Q	70-130
4-Bromofluorobenzene	181	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
 Client ID: PB42-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:25
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 17:52
 Analyst: MV
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00053	J	mg/kg	0.0020	0.00020	1
Benzene	0.041		mg/kg	0.00051	0.00017	1
Toluene	0.0089		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.44	E	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.23		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.78	E	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	2.1	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.064		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	157	Q	70-130
Toluene-d8	149	Q	70-130
4-Bromofluorobenzene	578	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
 Client ID: PB42-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:25
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 09:01
 Analyst: KJD
 Percent Solids: 80%

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	0.068		mg/kg	0.038	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	0.22		mg/kg	0.075	0.011	1
Isopropylbenzene	0.073	J	mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	0.20		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.79		mg/kg	0.15	0.025	1
Naphthalene	0.24	J	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-22
 Client ID: PB42-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:40
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 15:20
 Analyst: MV
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.043	0.014	1
Toluene	0.064	J	mg/kg	0.086	0.046	1
Ethylbenzene	ND		mg/kg	0.086	0.012	1
Isopropylbenzene	0.30		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.66		mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	309	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-23
 Client ID: PB42-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 13:23
 Analyst: AJK
 Percent Solids: 92%

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	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00090	0.00049	1
Ethylbenzene	0.00016	J	mg/kg	0.00090	0.00013	1
Isopropylbenzene	0.012		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0063		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	280	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-24
 Client ID: FB-210624-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:42
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-24
 Client ID: FB-210624-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/04/21 16:02
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-25
 Client ID: FB-210624-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:10
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:48
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-25
 Client ID: FB-210624-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:10
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/04/21 16:29
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-26
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 00:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/28/21 17:55
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/28/21 14:37

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: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-26
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 00:00
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 12:23
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-27 D2
 Client ID: DUP-9
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:05
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 08:36
 Analyst: KJD
 Percent Solids: 85%

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	100		mg/kg	1.3	0.22	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-27 D
 Client ID: DUP-9
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:05
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 13:40
 Analyst: MV
 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	0.67	0.067	5
Benzene	ND		mg/kg	0.17	0.056	5
Toluene	ND		mg/kg	0.34	0.18	5
Ethylbenzene	0.45		mg/kg	0.34	0.047	5
Isopropylbenzene	0.67		mg/kg	0.34	0.036	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	110	E	mg/kg	0.67	0.11	5
Naphthalene	14.		mg/kg	1.3	0.22	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-28
 Client ID: DUP-10
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:30
 Date Received: 06/24/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/02/21 15:46
 Analyst: MV
 Percent Solids: 79%

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	0.34		mg/kg	0.036	0.012	1
Toluene	0.087		mg/kg	0.072	0.039	1
Ethylbenzene	1.0		mg/kg	0.072	0.010	1
Isopropylbenzene	0.45		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.99		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	4.4		mg/kg	0.14	0.024	1
Naphthalene	1.1		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 24-26 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1519723-10					
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	0.0096	J	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	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04,06-07 Batch: WG1519723-5					
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	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1519724-5					
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	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 06:53
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18,20,22,27-28 Batch: WG1519793-10					
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	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:10
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 21,27 Batch: WG1519793-15					
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	98		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-05,07-08,13 Batch: WG1519895-5					
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	0.00019	J	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	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 09:44
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19,21 Batch: WG1520074-5					
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	0.00027	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00049	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09-12,14-16 Batch: WG1520303-5					
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	0.0096	J	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	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/04/21 10:10
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24-25 Batch: WG1520457-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 10:24
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23 Batch: WG1520495-5					
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	0.00025	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00039	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1520600-5					
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	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/21 10:36
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26 Batch: WG1520891-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 24-26 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04,06-07 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1519724-3 WG1519724-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 21,27 Batch: WG1519793-13 WG1519793-14								
Methyl tert butyl ether	92		92		66-130	0		30
Benzene	89		87		70-130	2		30
Toluene	91		92		70-130	1		30
Ethylbenzene	99		97		70-130	2		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	106		103		70-130	3		30
1,2,4-Trimethylbenzene	107		103		70-130	4		30
Naphthalene	105		111		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	108		106		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18,20,22,27-28 Batch: WG1519793-8 WG1519793-9								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	87		83		70-130	5		30
Toluene	93		88		70-130	6		30
Ethylbenzene	99		94		70-130	5		30
Isopropylbenzene	109		102		70-130	7		30
1,3,5-Trimethylbenzene	108		102		70-130	6		30
1,2,4-Trimethylbenzene	108		103		70-130	5		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
Toluene-d8	107		107		70-130
4-Bromofluorobenzene	109		108		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-05,07-08,13 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19,21 Batch: WG1520074-3 WG1520074-4								
Methyl tert butyl ether	106		105		66-130	1		30
Benzene	103		103		70-130	0		30
Toluene	96		95		70-130	1		30
Ethylbenzene	99		98		70-130	1		30
Isopropylbenzene	107		109		70-130	2		30
1,3,5-Trimethylbenzene	108		108		70-130	0		30
1,2,4-Trimethylbenzene	111		111		70-130	0		30
Naphthalene	107		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		107		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	106		107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09-12,14-16 Batch: WG1520303-3 WG1520303-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24-25 Batch: WG1520457-3 WG1520457-4								
Methyl tert butyl ether	82		89		63-130	8		20
Benzene	89		92		70-130	3		20
Toluene	87		90		70-130	3		20
Ethylbenzene	88		93		70-130	6		20
Isopropylbenzene	90		94		70-130	4		20
1,3,5-Trimethylbenzene	92		94		64-130	2		20
1,2,4-Trimethylbenzene	92		94		70-130	2		20
Naphthalene	73		78		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		111		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	105		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23 Batch: WG1520495-3 WG1520495-4								
Methyl tert butyl ether	108		107		66-130	1		30
Benzene	105		106		70-130	1		30
Toluene	95		98		70-130	3		30
Ethylbenzene	100		104		70-130	4		30
Isopropylbenzene	115		116		70-130	1		30
1,3,5-Trimethylbenzene	117		117		70-130	0		30
1,2,4-Trimethylbenzene	120		120		70-130	0		30
Naphthalene	111		108		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	113		110		70-130
Toluene-d8	94		96		70-130
4-Bromofluorobenzene	114		110		70-130
Dibromofluoromethane	110		111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

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: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 26 Batch: WG1520891-3 WG1520891-4								
Methyl tert butyl ether	87		92		63-130	6		20
Benzene	99		100		70-130	1		20
Toluene	98		100		70-130	2		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	98		100		70-130	2		20
Naphthalene	87		90		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	103		105		70-130
4-Bromofluorobenzene	105		98		70-130
Dibromofluoromethane	100		98		70-130



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01

Date Collected: 06/24/21 08:00

Client ID: PB84-09-SS01

Date Received: 06/24/21

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	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-02
 Client ID: PB84-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:20
 Date Received: 06/24/21
 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	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-03
Client ID: PB84-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:25
Date Received: 06/24/21
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	79.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04

Date Collected: 06/24/21 08:35

Client ID: PB84-16-SS01

Date Received: 06/24/21

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	81.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05

Date Collected: 06/24/21 08:50

Client ID: PB84-19-SS01

Date Received: 06/24/21

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	81.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-06
Client ID: PB84-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:00
Date Received: 06/24/21
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	80.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**SAMPLE RESULTS**

Lab ID: L2134501-07

Date Collected: 06/24/21 09:05

Client ID: PB84-12-SS01

Date Received: 06/24/21

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	82.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-08
 Client ID: PB42-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:00
 Date Received: 06/24/21
 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	77.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-09
 Client ID: PB42-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:10
 Date Received: 06/24/21
 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	77.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-10

Date Collected: 06/24/21 10:25

Client ID: PB42-03-SS01

Date Received: 06/24/21

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	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-11

Date Collected: 06/24/21 10:35

Client ID: PB42-04-SS01

Date Received: 06/24/21

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	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-12
Client ID: PB42-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:40
Date Received: 06/24/21
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	79.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-13

Date Collected: 06/24/21 10:50

Client ID: PB42-06-SS01

Date Received: 06/24/21

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	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14
 Client ID: PB42-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:00
 Date Received: 06/24/21
 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	79.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15

Date Collected: 06/24/21 11:10

Client ID: PB42-08-SS01

Date Received: 06/24/21

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	84.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Client ID: PB42-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
Date Received: 06/24/21
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	80.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**SAMPLE RESULTS**

Lab ID: L2134501-17

Date Collected: 06/24/21 12:40

Client ID: PB42-10-SS01

Date Received: 06/24/21

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	81.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-18

Date Collected: 06/24/21 12:45

Client ID: PB42-11-SS01

Date Received: 06/24/21

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	75.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-19

Date Collected: 06/24/21 13:00

Client ID: PB42-12-SS01

Date Received: 06/24/21

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	80.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**SAMPLE RESULTS**

Lab ID: L2134501-20

Date Collected: 06/24/21 13:15

Client ID: PB42-13-SS01

Date Received: 06/24/21

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	80.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21

Date Collected: 06/24/21 13:25

Client ID: PB42-14-SS01

Date Received: 06/24/21

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	79.8		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-22

Date Collected: 06/24/21 13:40

Client ID: PB42-15-SS01

Date Received: 06/24/21

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	73.0		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-23

Date Collected: 06/24/21 14:00

Client ID: PB42-16-SS01

Date Received: 06/24/21

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	92.3		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**SAMPLE RESULTS**

Lab ID: L2134501-27

Date Collected: 06/24/21 08:05

Client ID: DUP-9

Date Received: 06/24/21

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	84.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**SAMPLE RESULTS**

Lab ID: L2134501-28

Date Collected: 06/24/21 13:30

Client ID: DUP-10

Date Received: 06/24/21

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	78.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134501

Report Date: 07/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1516881-1 QC Sample: L2134501-01 Client ID: PB84-09-SS01						
Solids, Total	82.8	82.3	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-23,27-28 QC Batch ID: WG1516883-1 QC Sample: L2134493-01 Client ID: DUP Sample						
Solids, Total	90.6	90.7	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**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(*)
L2134501-01A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-01B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-02A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-02B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-03A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-03B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-04A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-04B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-05A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-05B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-06A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-06B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-07A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-07B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-08A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-08B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-09A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-09B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-10A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-10B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-11A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-11B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-12A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-12B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-13A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-13B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-14A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-14B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-15A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-15B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-16A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-16B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-17A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-17B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-18A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-18B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-19A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-19B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-20A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-20B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-21A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-21B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-21C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260H(14),PA-8260HLW(14)
L2134501-21D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-22A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-22B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-22C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-22D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-23A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-23B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-23C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-23D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-24A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-24E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-26A	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26B	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26D	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134501**Project Number:** 200.00135.005.03**Report Date:** 07/07/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-26E	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)
L2134501-27A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-27B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-27C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-27D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-28A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-28B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-28C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-28D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

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: L2134501
Report Date: 07/07/21

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: L2134501
Report Date: 07/07/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

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-Terpeneol

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-Terpeneol; 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

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 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

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Fax: Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/25/21 ALPHA Job #: L2134501

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
 PADEP Storage Tank Program

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
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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
		Date	Time		
34501 -01	PB84-09-5501	6/24	0800	S	TS
-02	PB84-10-5501		0810		
-03	PB84-18-5501		0825		
-04	PB84-16-5501		0835		
-05	PB84-19-5501		0850		
-06	PB84-15-5501		0900		
-07	PB84-12-5501		0905		
-08	PB42-01-5501		1000		
-09	PB42-02-5501		1010		
-10	PB42-03-5501		1025		

Container Type	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: 6/24 1532
 Received By: *[Signature]* Date/Time: 6/24 1537

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 #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA
TEL: 508-698-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 3894
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria
PADEP Storage Tank Program

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	TOTAL # BOTTLES
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<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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ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
34501 -11	PB42-04-5501	6/24	1035	S	IS
-12	PB42-05-5501		1040	S	
-13	PB42-06-5501		1050		
-14	PB42-07-5501		1100		
-15	PB42-08-5501		1110		
-16	PB42-09-5501		1230		
-17	PB42-10-5501		1240		
-18	PB42-11-5501		1245		
-19	PB42-12-5501		1300		
-20	PB42-13-5501		1315		

Container Type	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/24/21 1530	<i>[Signature]</i>	6/24/21 1530
<i>[Signature]</i>	6/24/21 1800	<i>[Signature]</i>	6/24/21 1800
<i>[Signature]</i>	6/24/21	<i>[Signature]</i>	6/24/21 1800

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

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:

Westborough, MA Mansfield, MA
 TEL: 508-896-9220 TEL: 508-822-9300
 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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

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

PADEP Storage Tank Program

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 (4)
<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)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
34501 -21	PB42-14-SS01	6/24	1325	S	TS
-22	PB42-15-SS01		1340	S	
-23	PB42-16-SS01		1400	S	
-24	FB-210624-1		1200	W	
-25	FB-210624-2		1410	W	
-26	TB			W	
-27	DUP-9		0805	S	
-28	DUP-10		1330	S	

Container Type	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/24 1530	<i>[Signature]</i>	6/24 1330
<i>[Signature]</i>	6/24 1800	<i>[Signature]</i>	6/24 1130
<i>[Signature]</i>	6/24 121	<i>[Signature]</i>	6/24 1130

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:

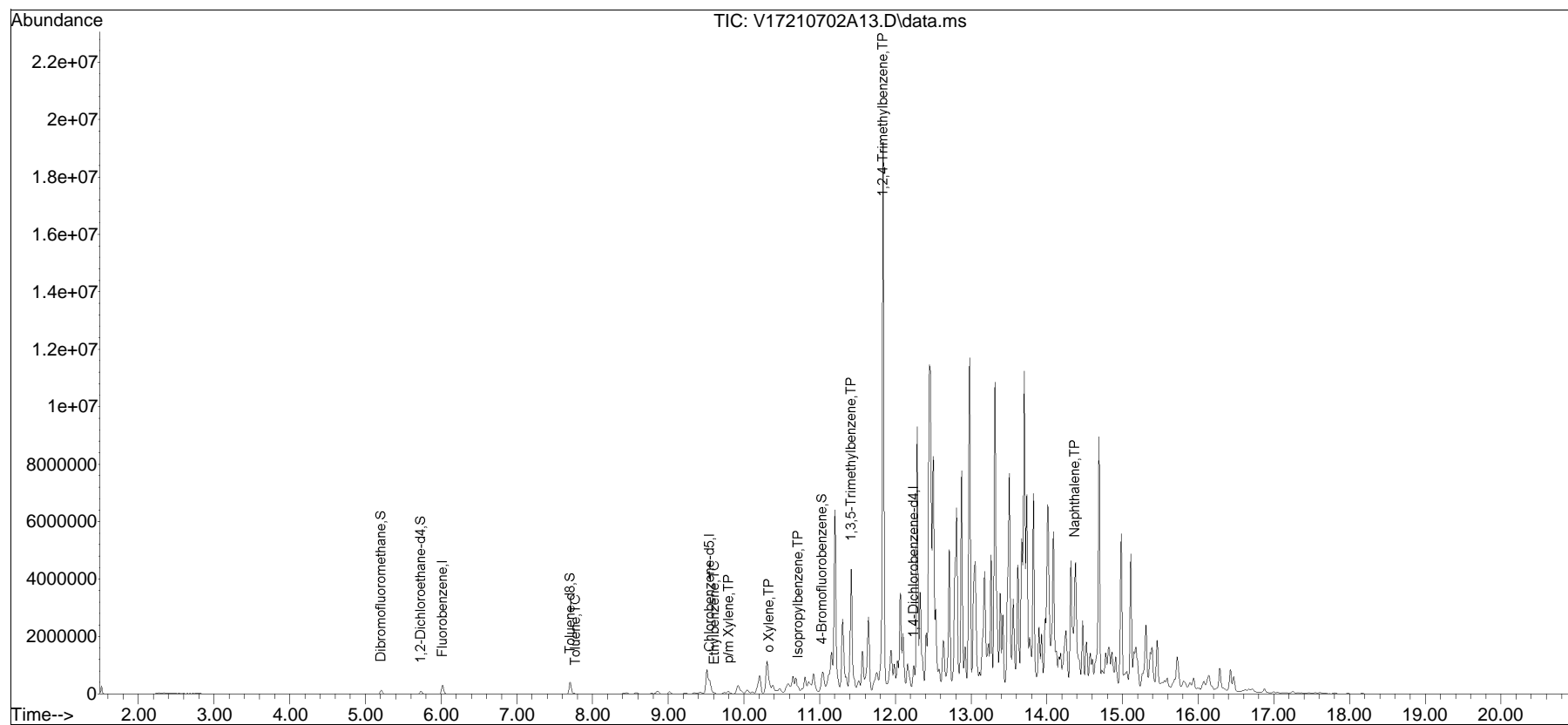
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA117\2021\210702A\
Data File : V17210702A13.D
Acq On : 02 Jul 2021 11:59 am
Operator : VOA117:JC
Sample : L2134501-01D2,31H,5.90,5,0.020,,A
Misc : WG1519723,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 06 09:22:27 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

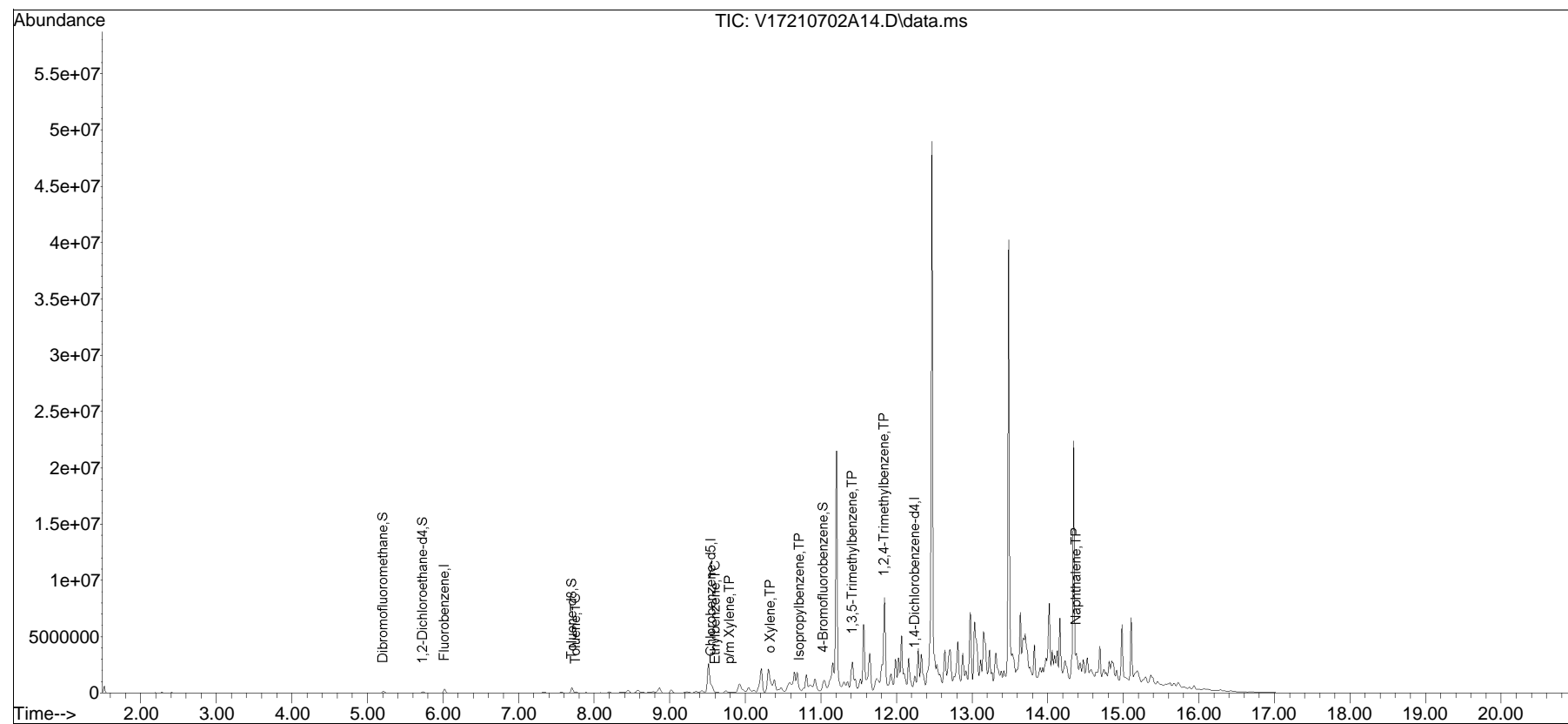


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A14.D
 Acq On : 02 Jul 2021 12:25 pm
 Operator : VOA117:LAC
 Sample : L2134501-04,31,6.41,5,,B
 Misc : WG1519895,ICAL18099
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 02 14:50:21 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

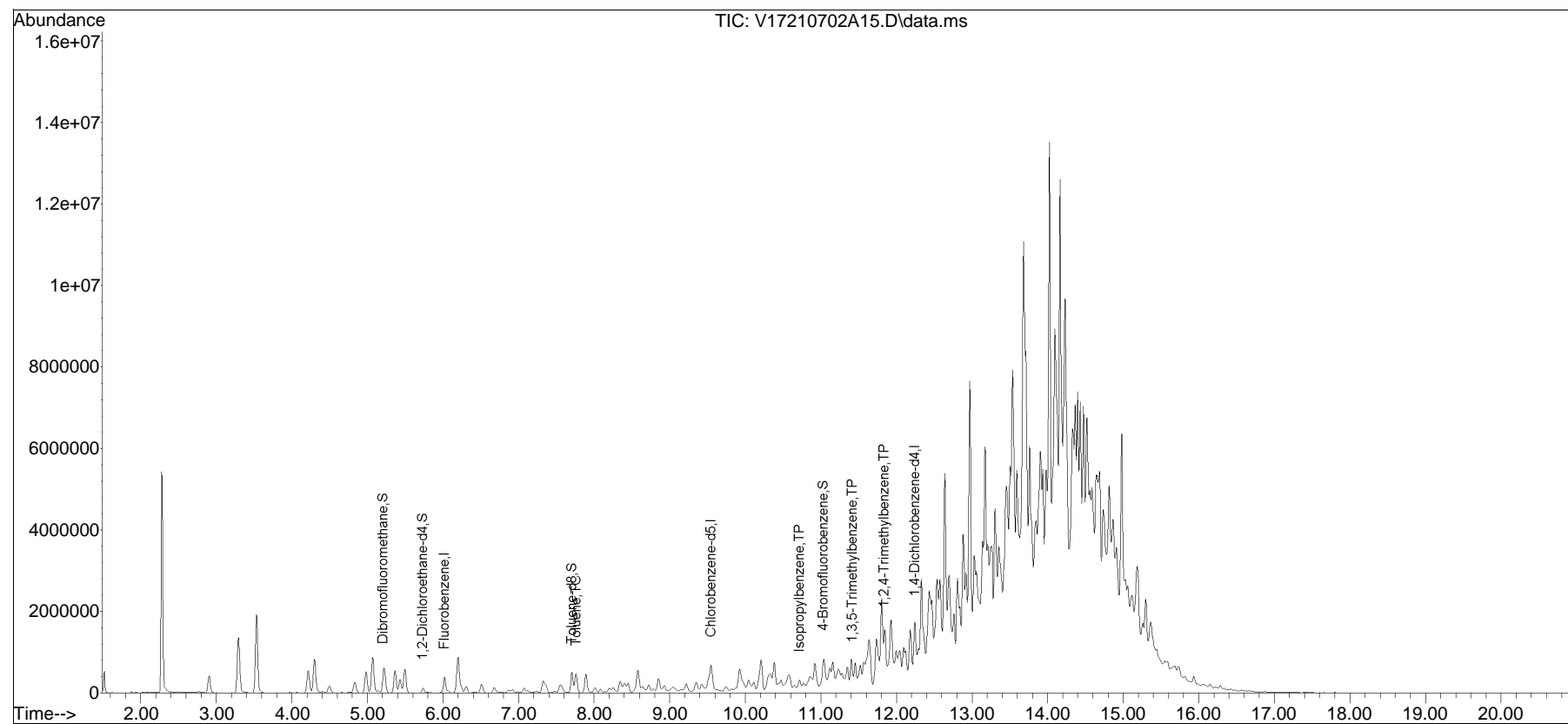


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A15.D
Acq On : 02 Jul 2021 12:51 pm
Operator : VOA117:LAC
Sample : L2134501-05,31,6.10,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 02 16:27:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

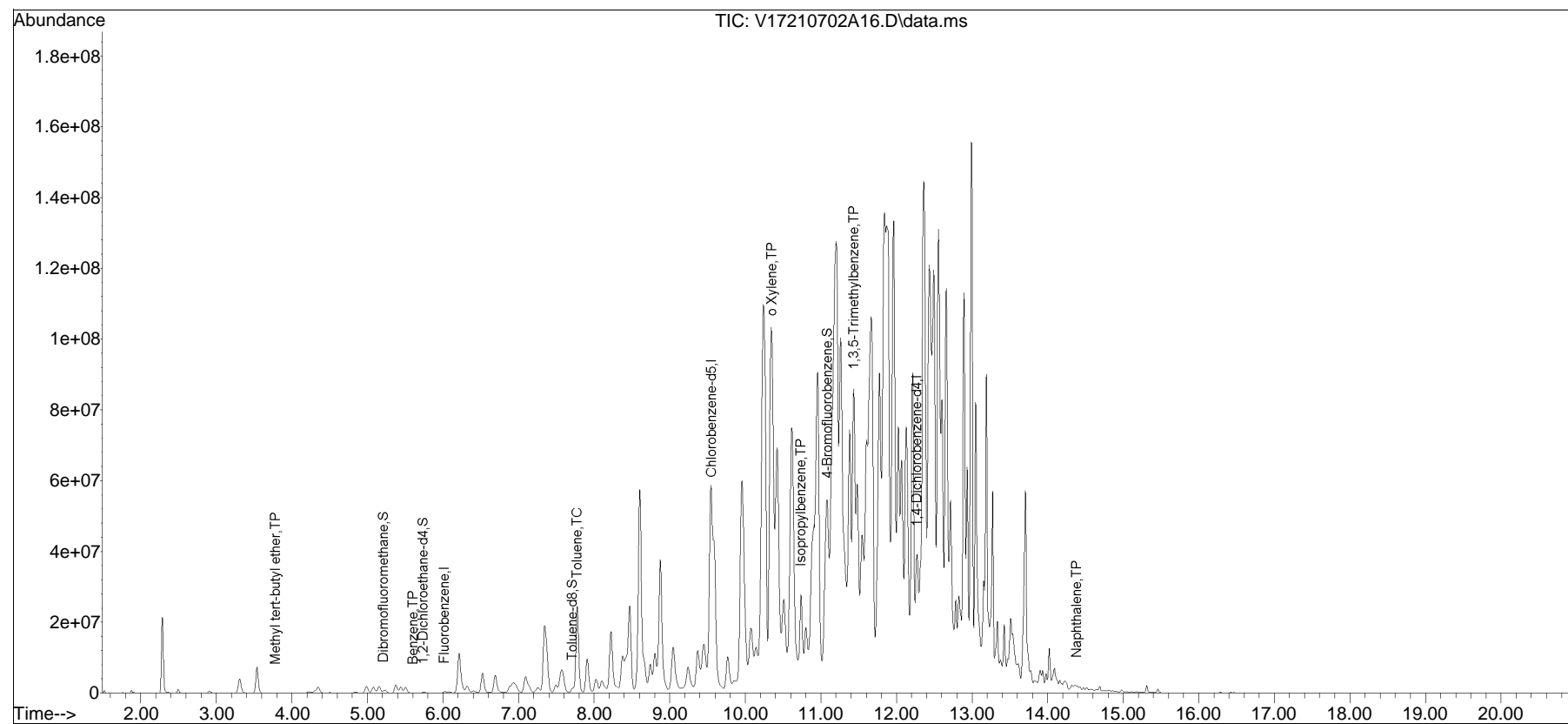


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A16.D
Acq On : 02 Jul 2021 01:17 pm
Operator : VOA117:LAC
Sample : L2134501-07,31,6.88,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 06 09:28:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

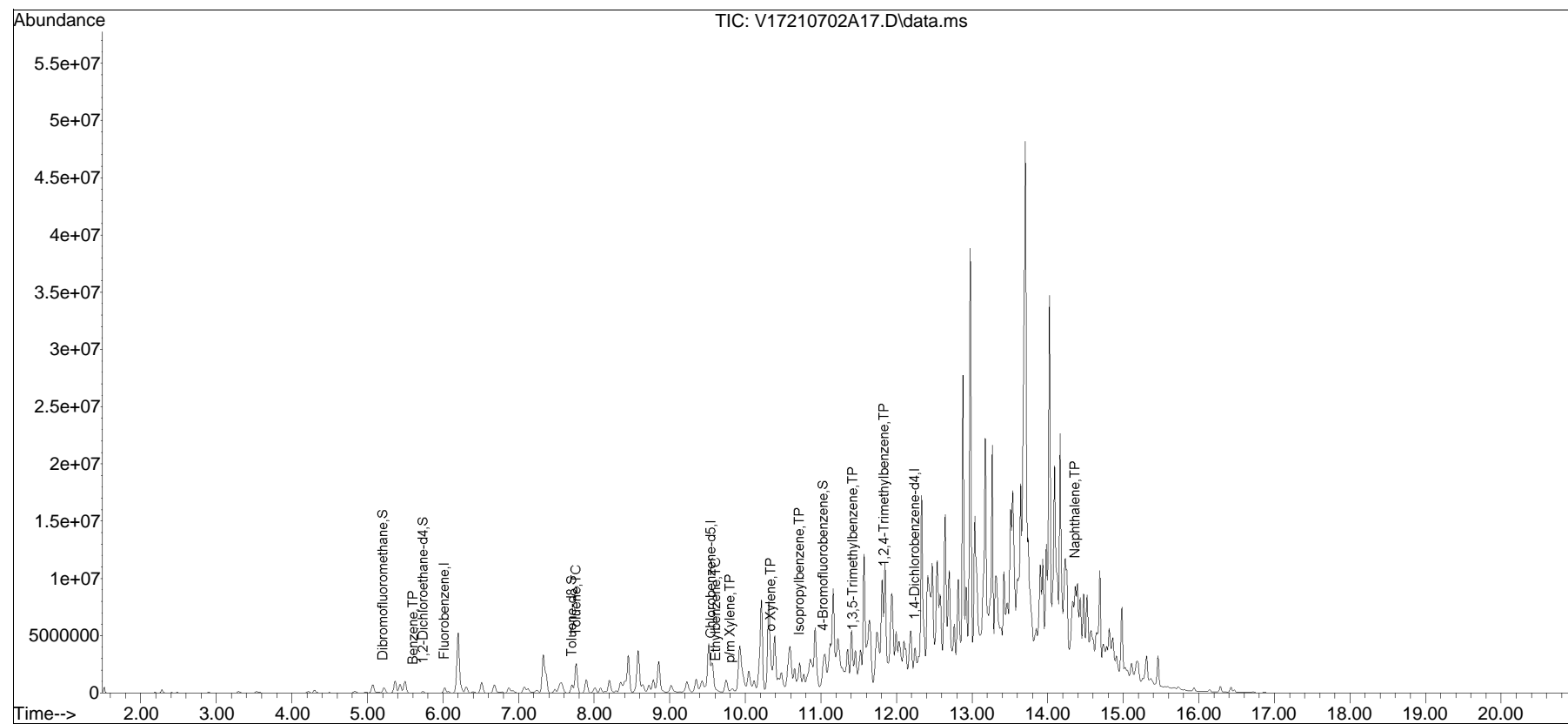


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A17.D
 Acq On : 02 Jul 2021 01:43 pm
 Operator : VOA117:LAC
 Sample : L2134501-08,31,5.61,5,,B
 Misc : WG1519895,ICAL18099
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 02 15:11:29 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

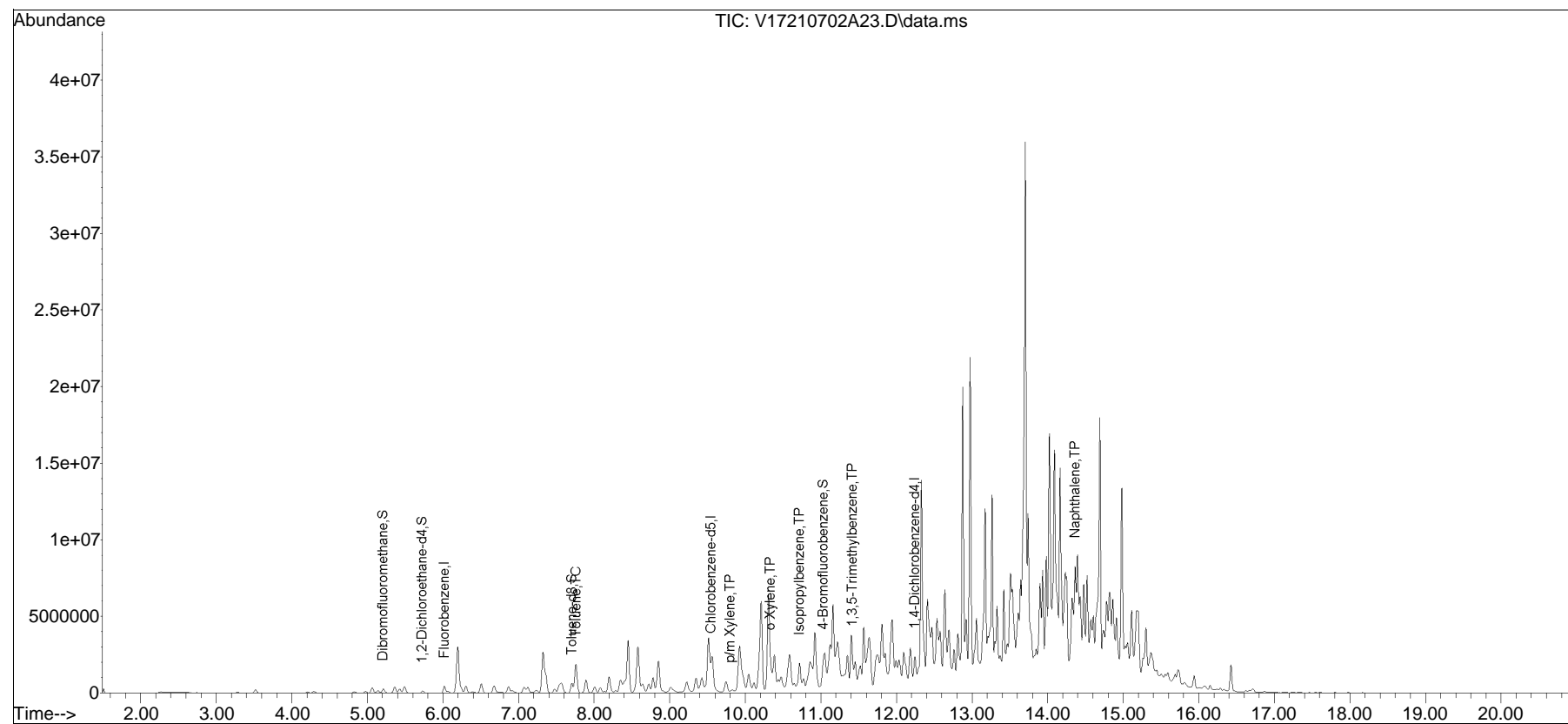


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A23.D
Acq On : 02 Jul 2021 04:19 pm
Operator : VOA117:KJD
Sample : L2134501-09,31H,5.36,5,0.100,,A
Misc : WG1520303,ICAL18099
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 19:54:13 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

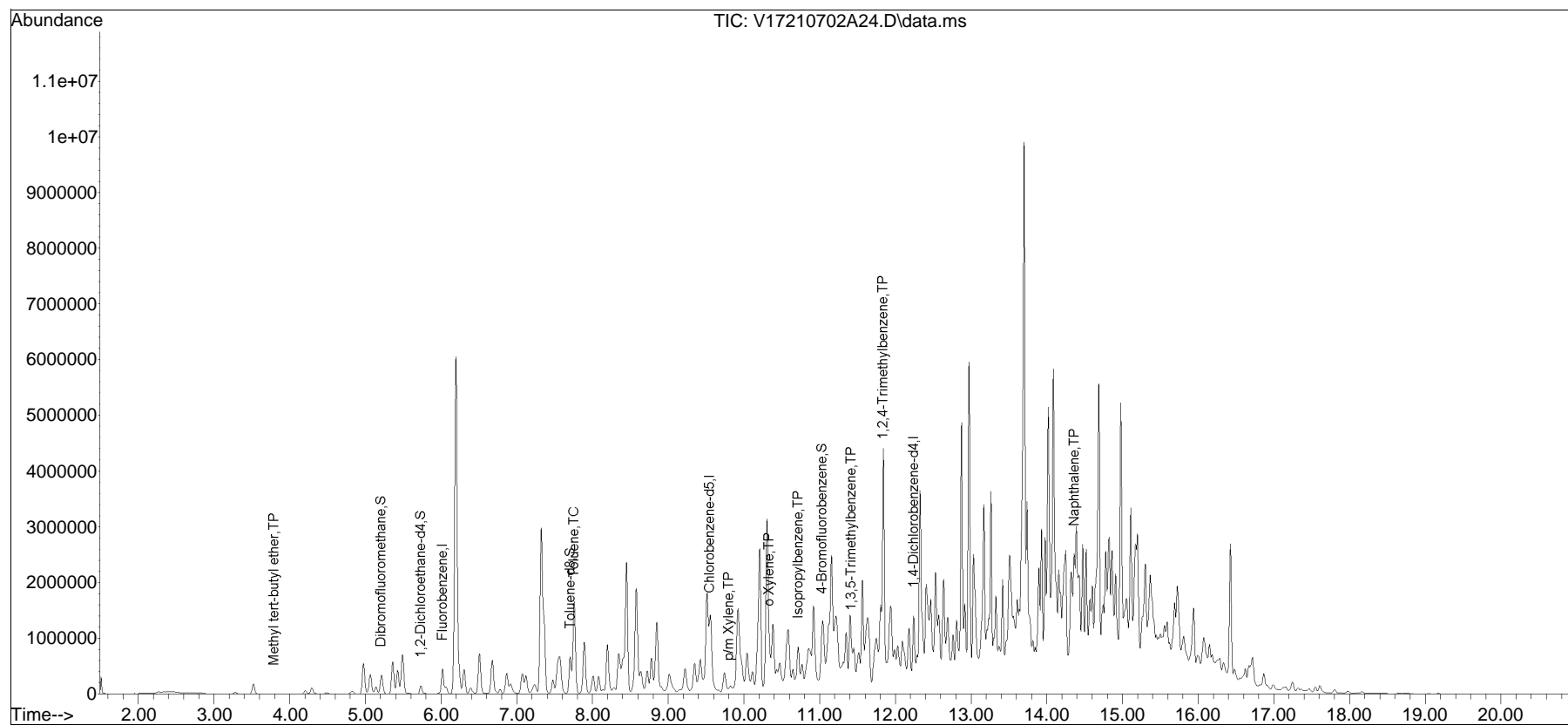


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A24.D
Acq On : 02 Jul 2021 04:45 pm
Operator : VOA117:KJD
Sample : L2134501-10,31H,6.44,5,0.100,A
Misc : WG1520303,ICAL18099
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 02 19:54:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

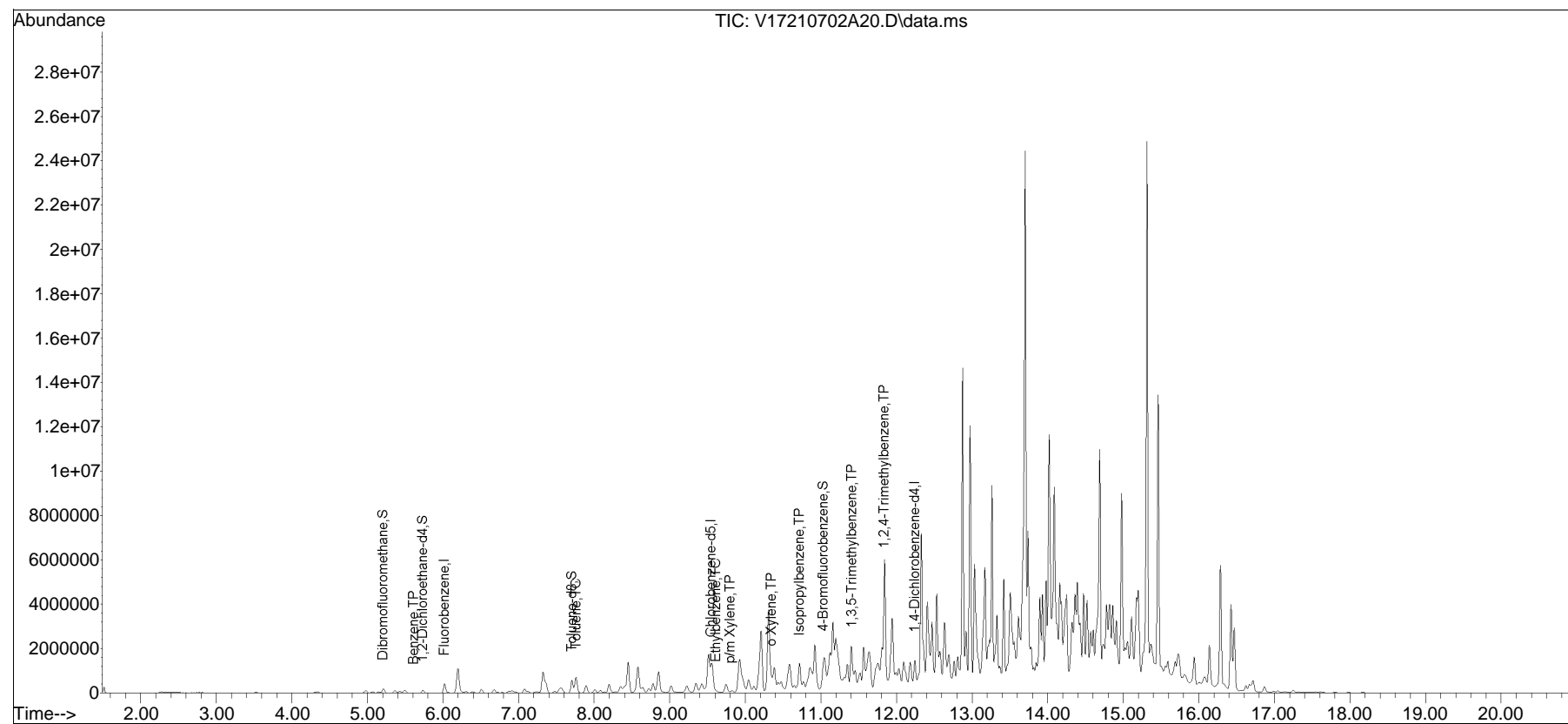


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A20.D
Acq On : 02 Jul 2021 03:01 pm
Operator : VOA117:KJD
Sample : L2134501-11D,31H,4.38,5,0.020,,A
Misc : WG1520303,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 19:46:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

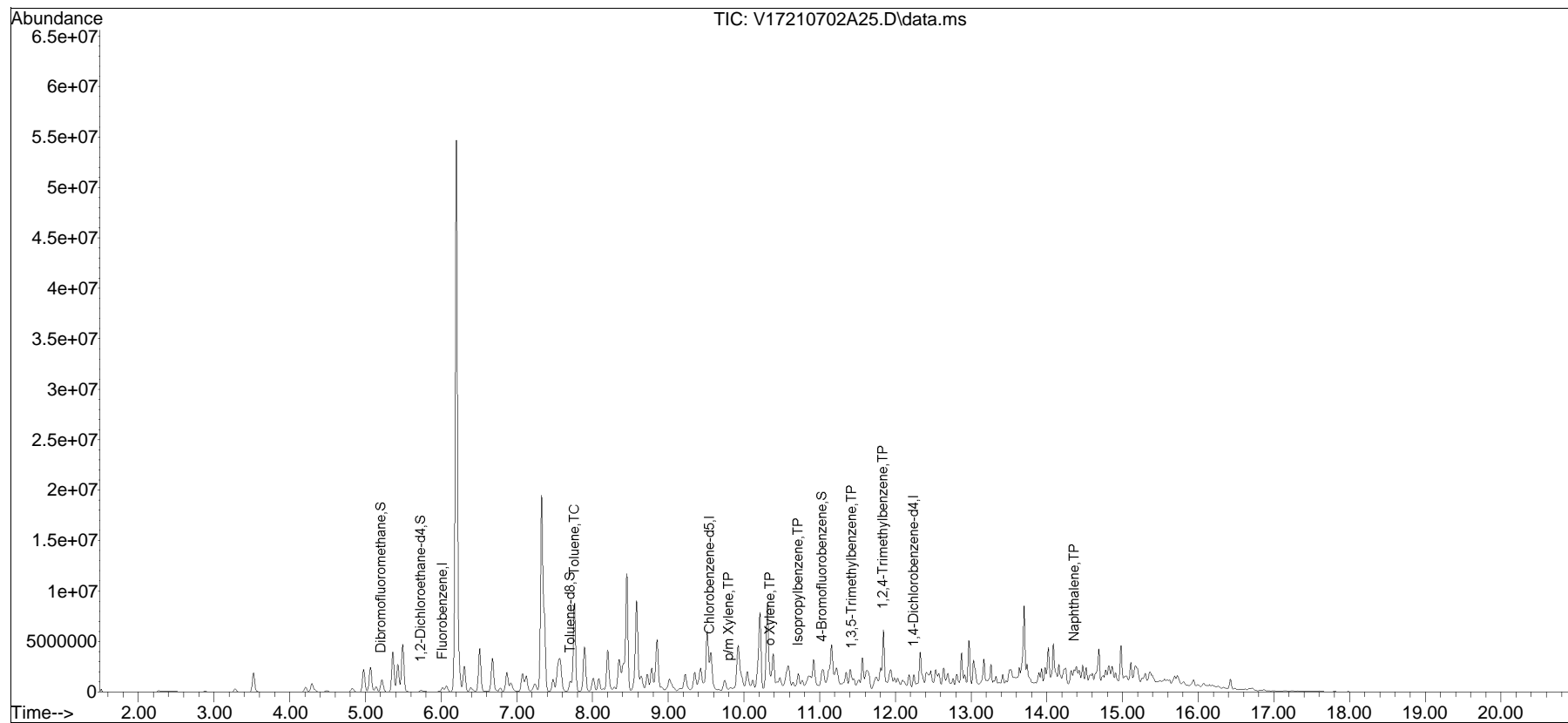


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A25.D
Acq On : 02 Jul 2021 05:11 pm
Operator : VOA117:KJD
Sample : L2134501-12,31H,6.05,5,0.100,,A
Misc : WG1520303,ICAL18099
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 02 19:55:26 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

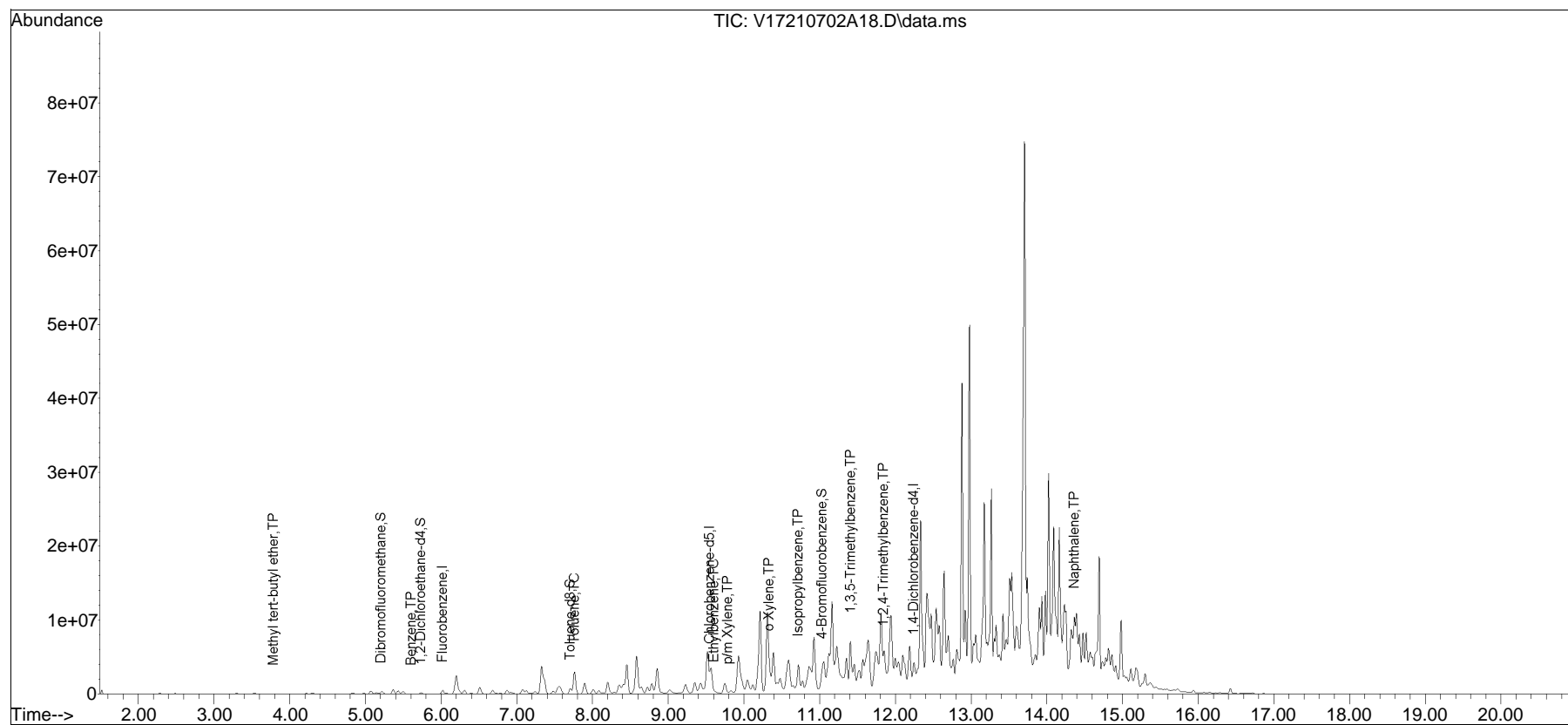


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A18.D
Acq On : 02 Jul 2021 02:09 pm
Operator : VOA117:LAC
Sample : L2134501-13,31,6.04,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 02 16:38:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

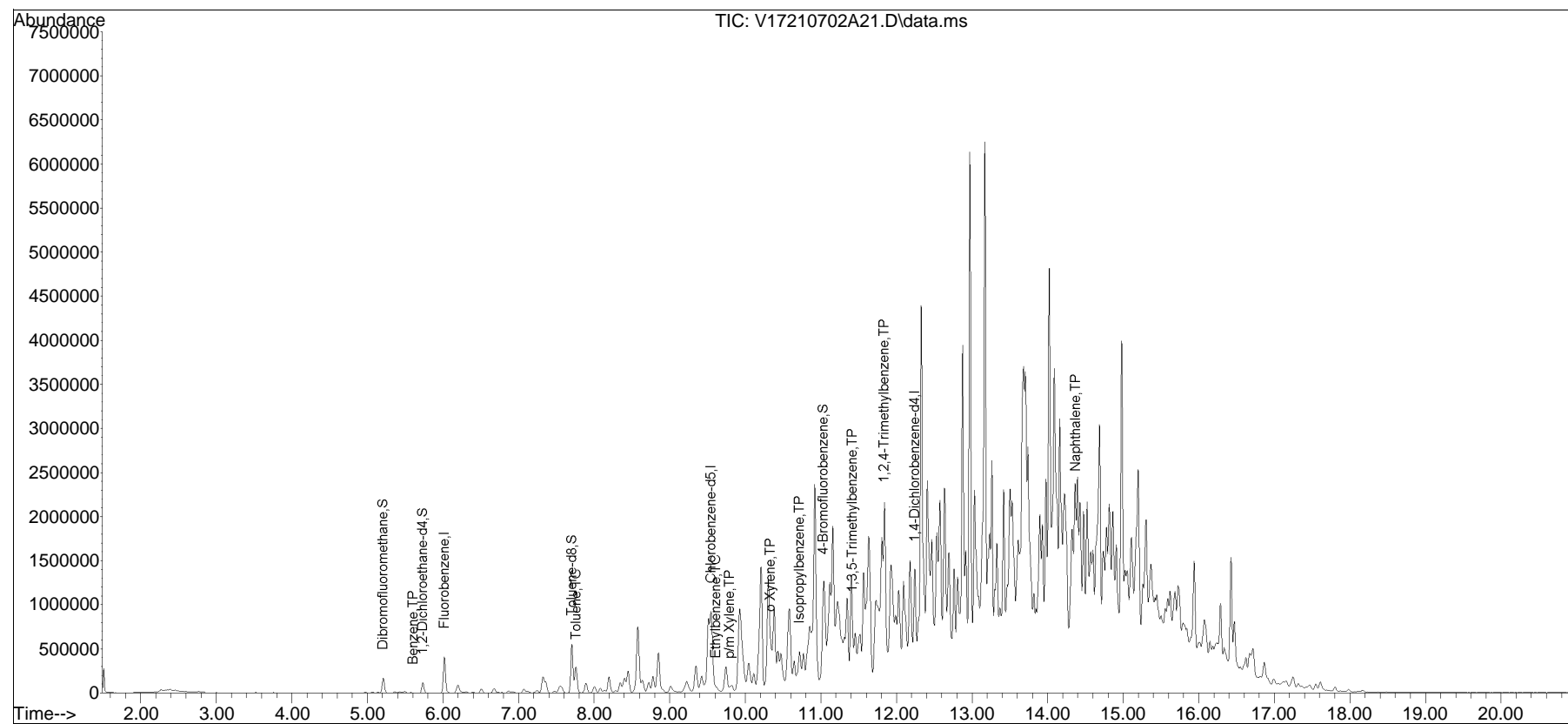


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A21.D
 Acq On : 02 Jul 2021 03:27 pm
 Operator : VOA117:KJD
 Sample : L2134501-14D,31H,5.23,5,0.050,,A
 Misc : WG1520303,ICAL18099
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 19:46:15 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

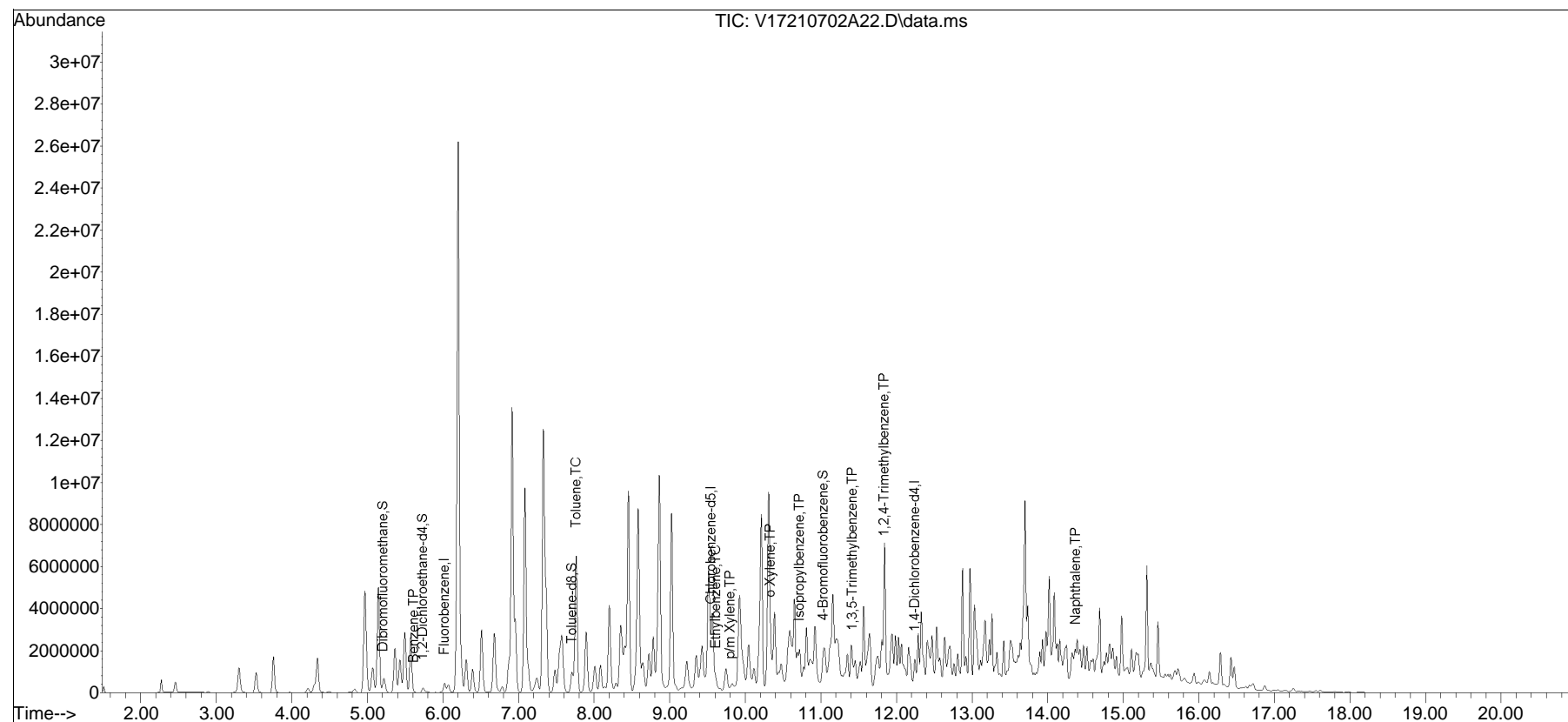


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
 Data File : V17210702A22.D
 Acq On : 02 Jul 2021 03:53 pm
 Operator : VOA117:KJD
 Sample : L2134501-15D,31H,6.36,5,0.050,,A
 Misc : WG1520303,ICAL18099
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 19:47:07 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

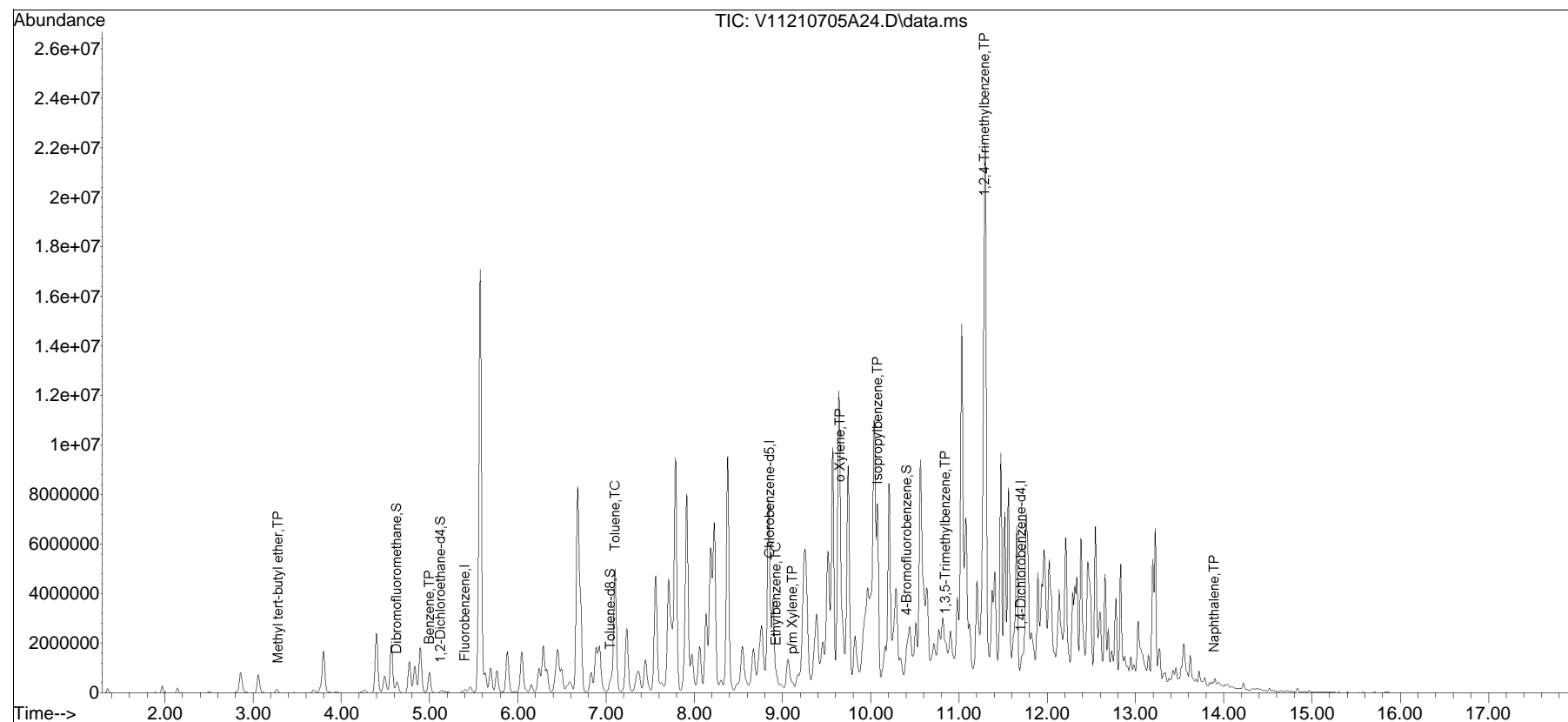


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210705A\
Data File : V11210705A24.D
Acq On : 05 Jul 2021 10:41 pm
Operator : VOA111:MV
Sample : L2134501-16,31,5.86,5,,B
Misc : WG1520600,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 06 07:17:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210705A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list05A\V11210705A01.D•

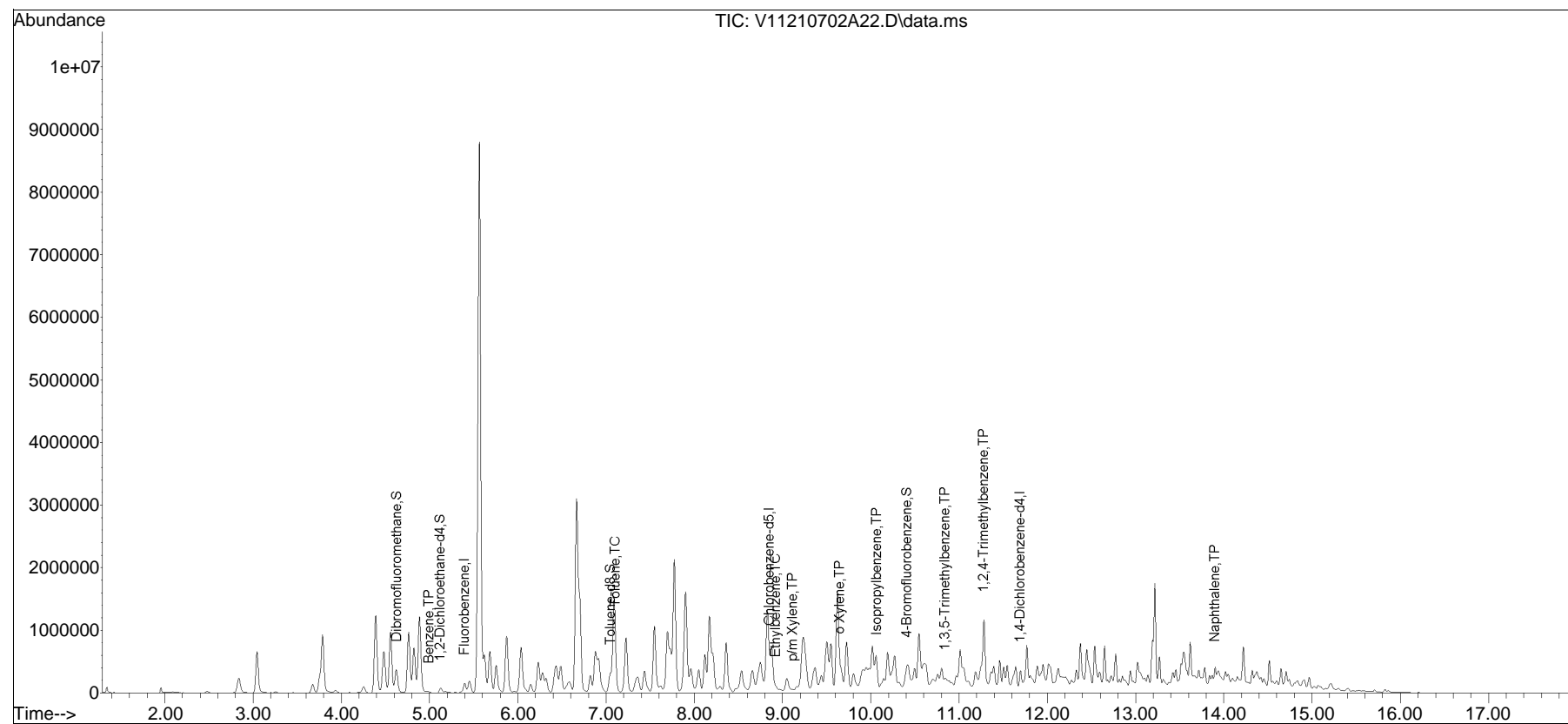


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
 Data File : V11210702A22.D
 Acq On : 02 Jul 2021 02:30 pm
 Operator : VOA111:MV
 Sample : L2134501-17,31H,5.35,5,0.100,,A
 Misc : WG1519793,ICAL18049
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 20:21:52 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

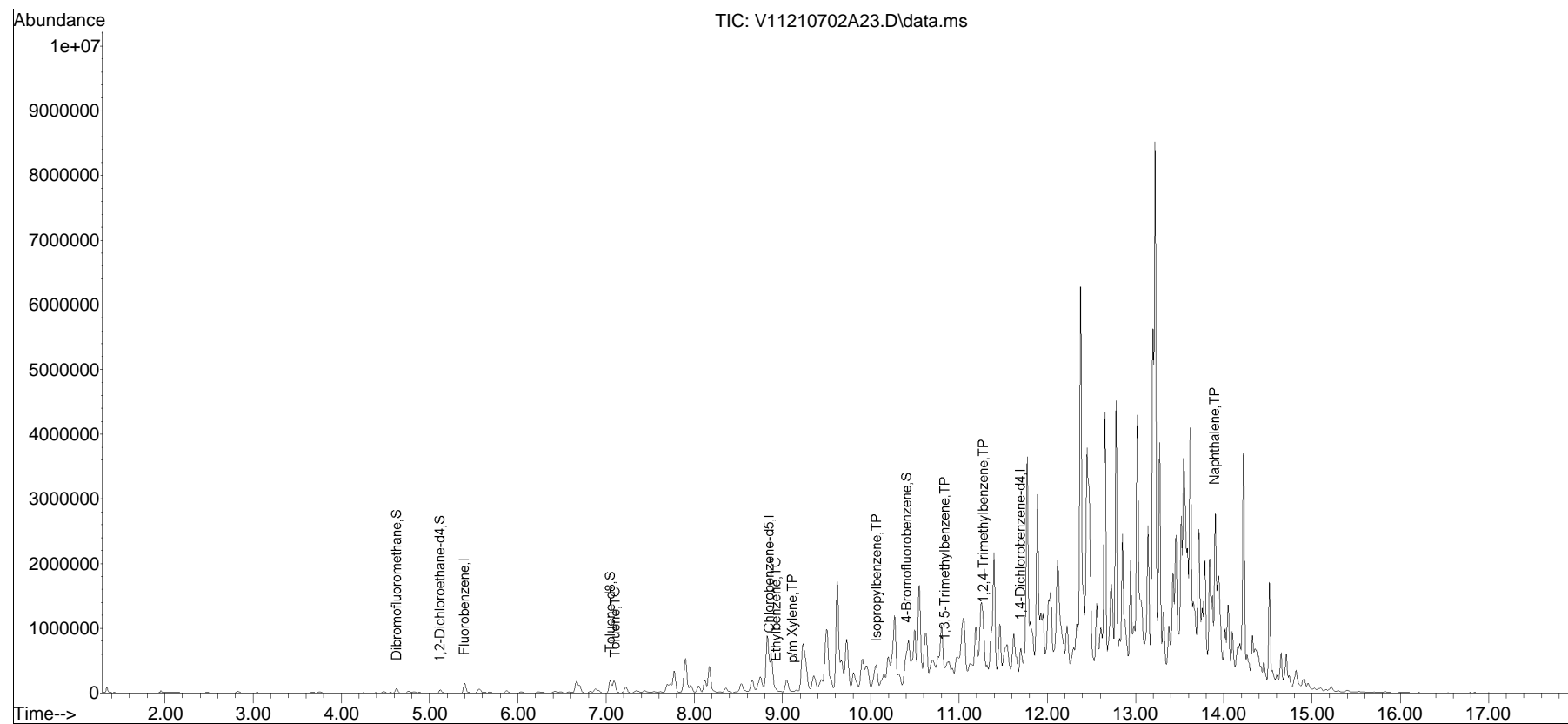


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A23.D
Acq On : 02 Jul 2021 02:55 pm
Operator : VOA111:MV
Sample : L2134501-18,31H,3.34,5,0.100,,A
Misc : WG1519793,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 20:22:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

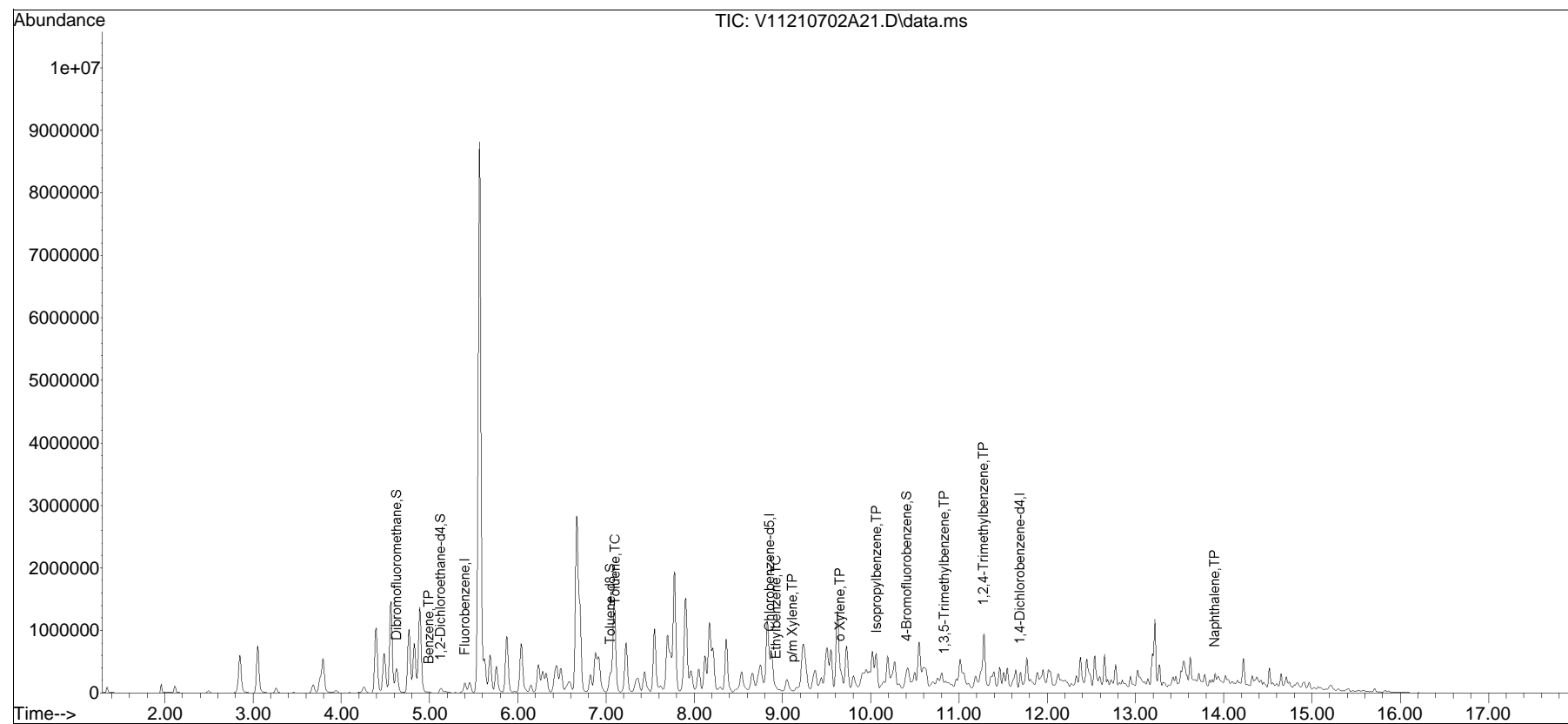


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
 Data File : V11210702A21.D
 Acq On : 02 Jul 2021 02:05 pm
 Operator : VOA111:MV
 Sample : L2134501-20D,31H,6.29,5,0.050,,A
 Misc : WG1519793,ICAL18049
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 20:20:05 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

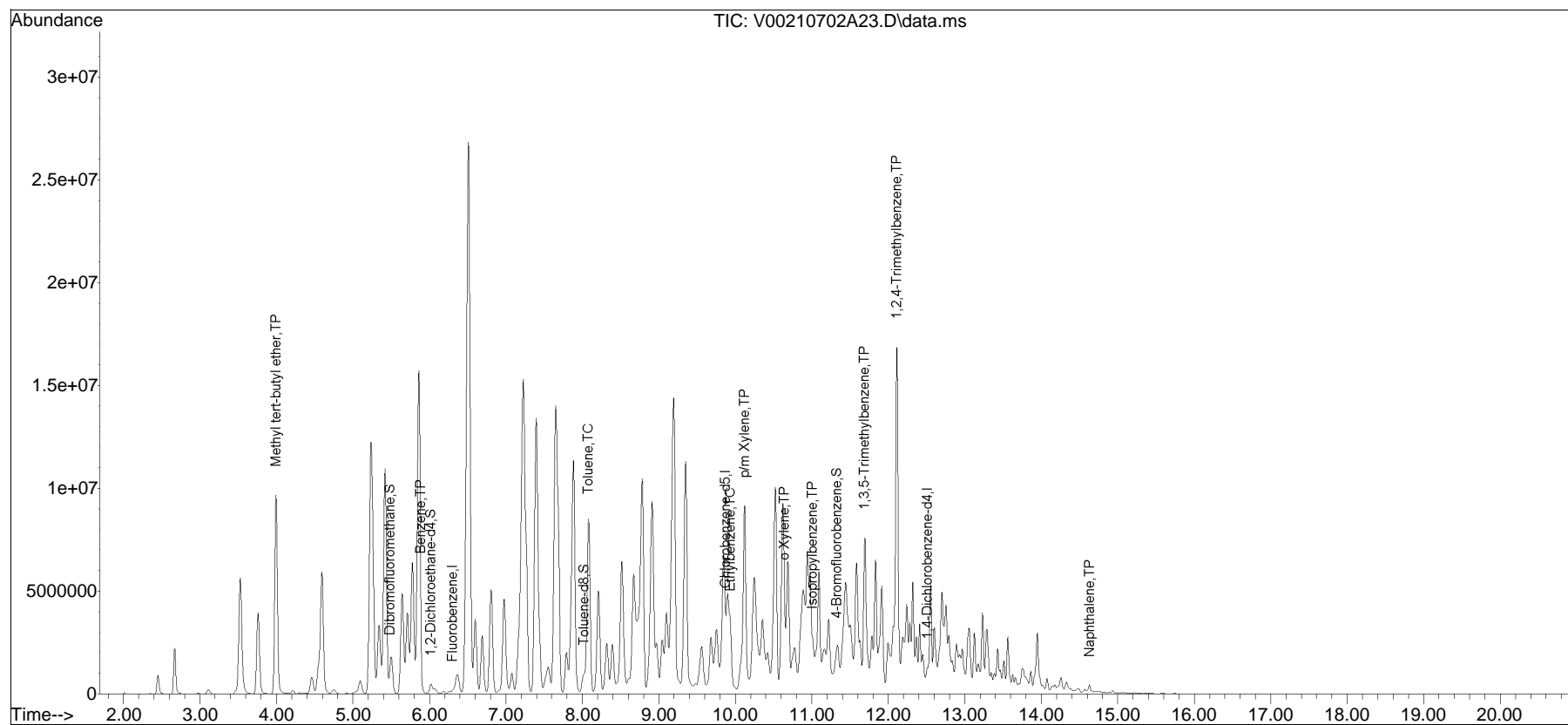


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\210702A\
Data File : V00210702A23.D
Acq On : 2 Jul 2021 5:52 pm
Operator : VOA100:MV
Sample : L2134501-21,31,6.17,5,,B
Misc : WG1520074,ICAL18027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 03 05:57:01 2021
Quant Method : I:\VOLATILES\VOA100\2021\210702A\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V00210702A01.D•

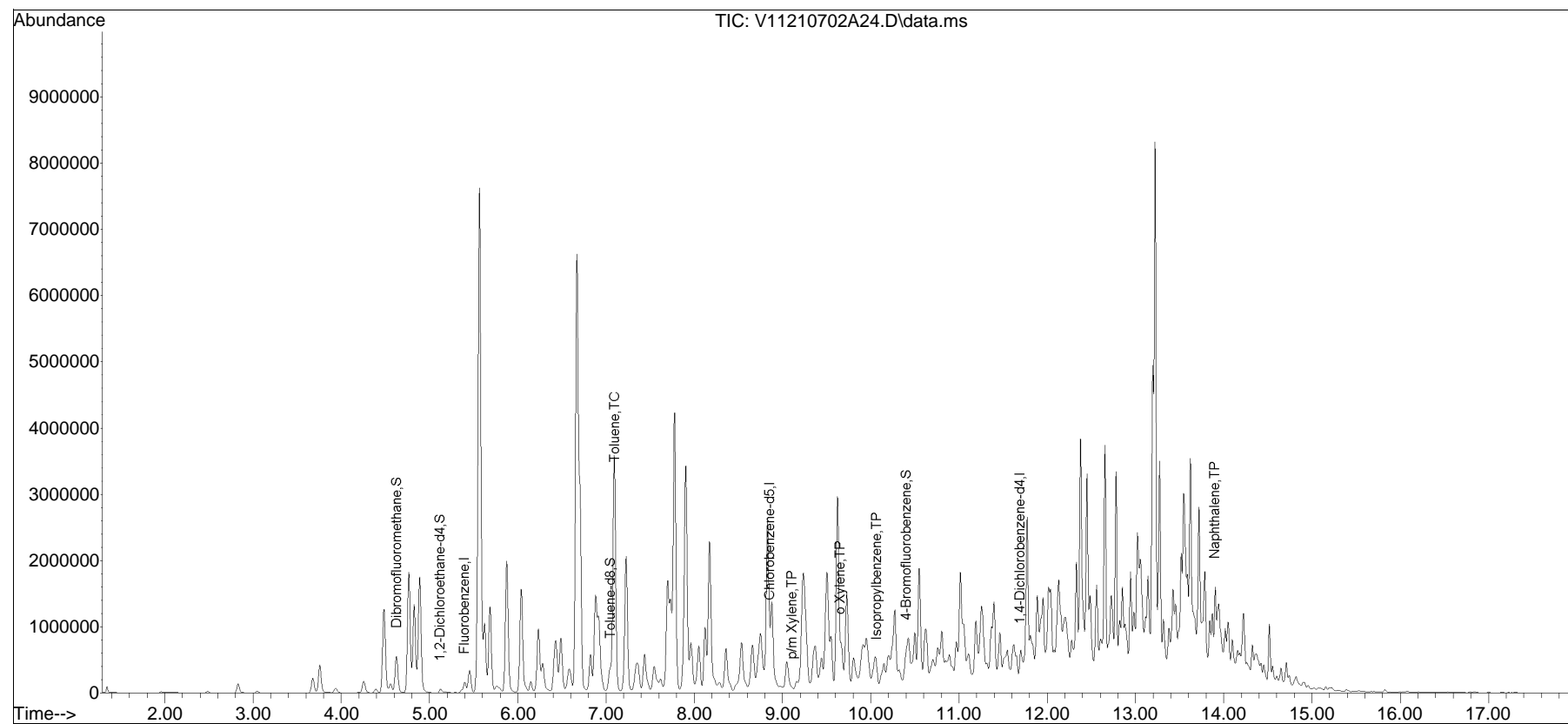


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A24.D
Acq On : 02 Jul 2021 03:20 pm
Operator : VOA111:MV
Sample : L2134501-22,31H,5.09,5,0.100,,A
Misc : WG1519793,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 02 20:23:04 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

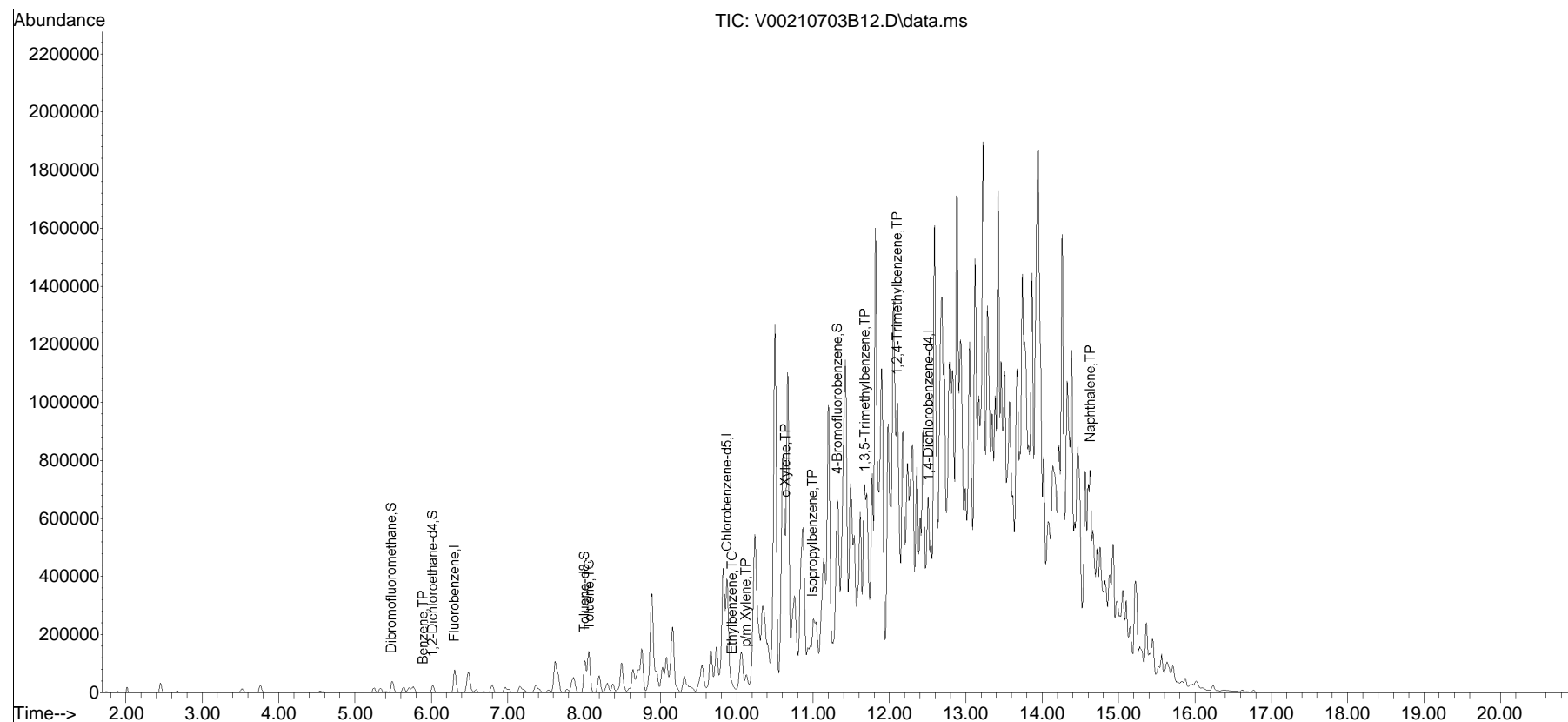


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\210703B\
Data File : V00210703B12.D
Acq On : 3 Jul 2021 1:23 pm
Operator : VOA100:AJK
Sample : L2134501-23,31,5.98,5,,C
Misc : WG1520495,ICAL18027
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 04 10:21:48 2021
Quant Method : I:\VOLATILES\VOA100\2021\210703B\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03B\V00210703B01.D•

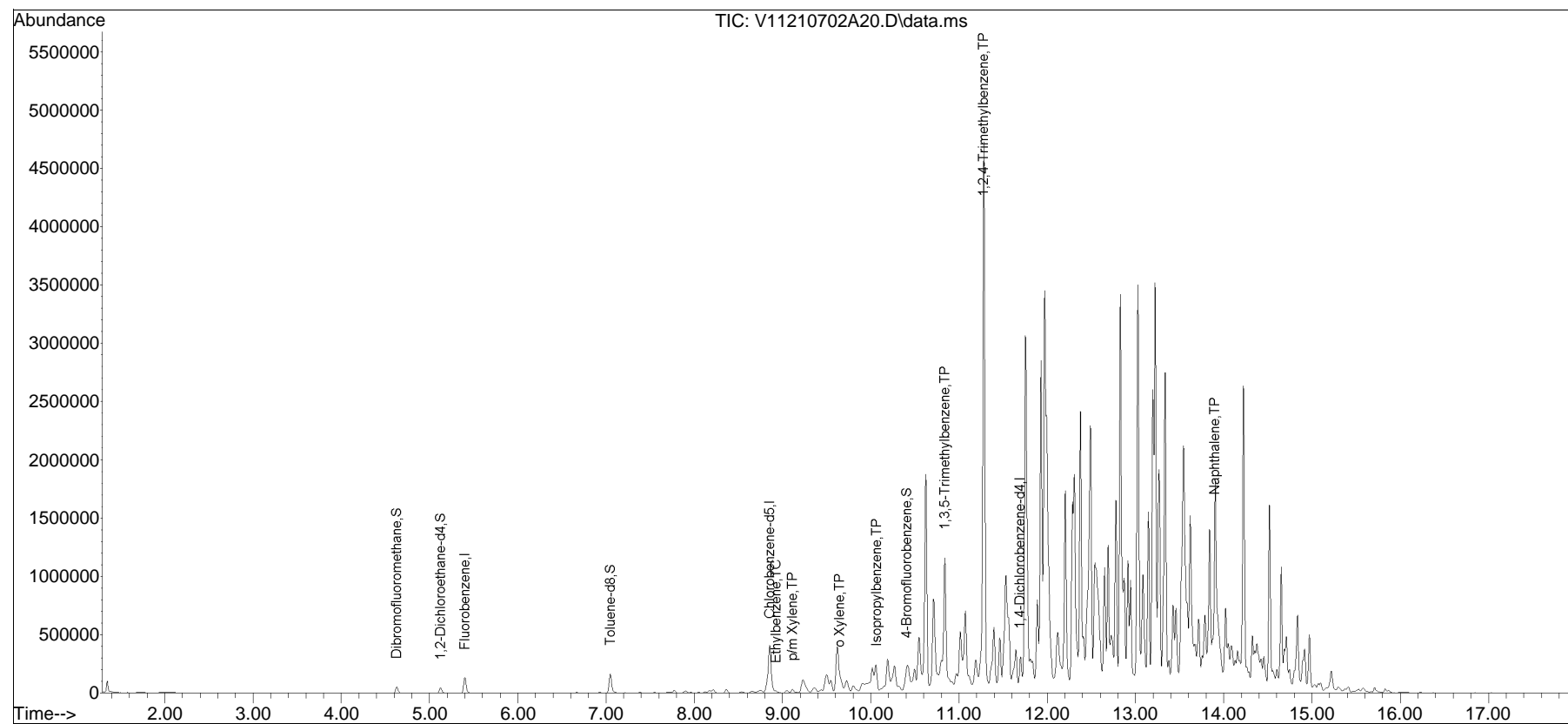


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A20.D
Acq On : 02 Jul 2021 01:40 pm
Operator : VOA111:MV
Sample : L2134501-27D,31H,5.09,5,0.020,,A
Misc : WG1519793,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 20:11:11 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

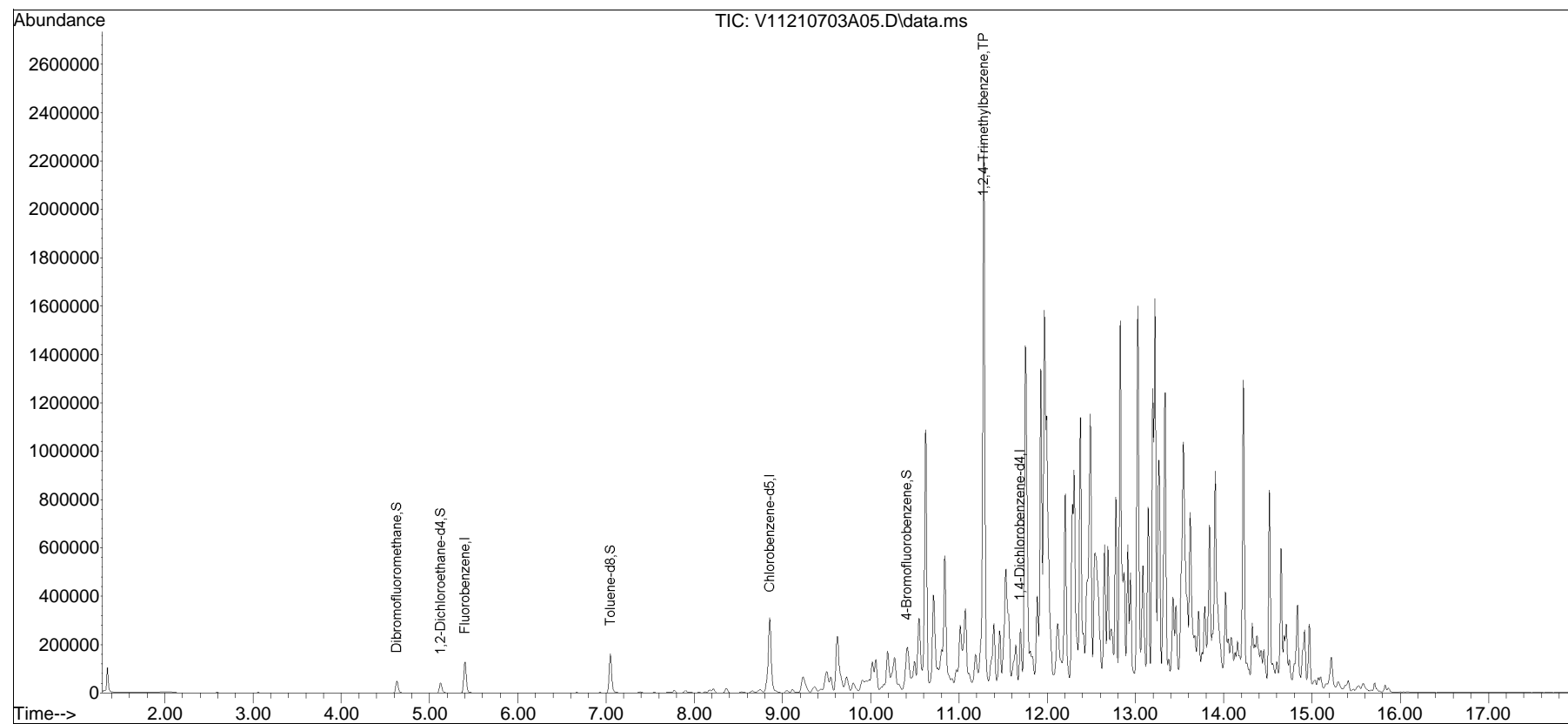


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210703A\
Data File : V11210703A05.D
Acq On : 03 Jul 2021 08:36 am
Operator : VOA111:KJD
Sample : L2134501-27D2,31H,5.09,5,0.010,,A
Misc : WG1519793,ICAL18049
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 04 17:26:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210703A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-1,2,4-TMB - 1,2,4-Trimethylbenzene only03A01.D•





ANALYTICAL REPORT

Lab Number:	L2134780
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:	07/08/21

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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: L2134780

Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134780-01	PB43-04-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:30	06/25/21
L2134780-02	PB43-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:55	06/25/21
L2134780-03	PB43-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:05	06/25/21
L2134780-04	PB43-13-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:20	06/25/21
L2134780-05	PB43-14-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:35	06/25/21
L2134780-06	PB83-08-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:45	06/25/21
L2134780-07	PB83-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:05	06/25/21
L2134780-08	PB83-10-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:20	06/25/21
L2134780-09	PB83-01-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:35	06/25/21
L2134780-10	PB83-02-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:50	06/25/21
L2134780-11	PB83-03-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:00	06/25/21
L2134780-12	PB83-07-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:10	06/25/21
L2134780-13	PB83-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:20	06/25/21
L2134780-14	PB43-15-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:40	06/25/21
L2134780-15	PB43-16-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:50	06/25/21
L2134780-16	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/25/21
L2134780-17	FB-210625	WATER	PHILADELPHIA, PA	06/25/21 12:00	06/25/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

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: L2134780
Report Date: 07/08/21

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

L2134780-03, -04, and -11: 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.

The surrogate recovery for the following samples is outside the acceptance criteria for 4-bromofluorobenzene; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2137480-03: 139%

L2134780-04: 153%

L2134780-09D2: 149%

L2134780-10: 144%

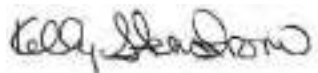
L2134780-11: 322%

Microextractables

The WG1518183-2 LCS recovery for 1,2,3-trichloropropane (128%), associated with L2134780-16 and -17, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

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: 07/08/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-01
 Client ID: PB43-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 08:30
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 15:38
 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	0.0088		mg/kg	0.0019	0.00019	1
Benzene	0.035		mg/kg	0.00047	0.00016	1
Toluene	0.0013		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	0.0010		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
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-02
 Client ID: PB43-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 08:55
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 16:04
 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	0.0019	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	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-03
 Client ID: PB43-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:05
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 19:32
 Analyst: AJK
 Percent Solids: 80%

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	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.059	J	mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1
Naphthalene	0.17	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-04
 Client ID: PB43-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:20
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 19:58
 Analyst: AJK
 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	0.0098	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	ND		mg/kg	0.059	0.0084	1
Isopropylbenzene	0.076		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.020	J	mg/kg	0.12	0.020	1
Naphthalene	0.20	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-05
 Client ID: PB43-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:35
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 19:06
 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	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	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
Naphthalene	ND		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-06
 Client ID: PB83-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:45
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/05/21 22:16
 Analyst: MV
 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	0.00046	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
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-07
 Client ID: PB83-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:05
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 09:02
 Analyst: MV
 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	0.0020	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
Naphthalene	ND		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-08
 Client ID: PB83-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:20
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 16:56
 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	0.0029	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	0.00048	J	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	90		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09 D2
 Client ID: PB83-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:35
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 08:36
 Analyst: MV
 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	0.25	0.026	2
Benzene	5.0		mg/kg	0.064	0.021	2
Toluene	0.53		mg/kg	0.13	0.069	2
Ethylbenzene	40.	E	mg/kg	0.13	0.018	2
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	19.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	71.	E	mg/kg	0.25	0.042	2
Naphthalene	14.		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09 D
 Client ID: PB83-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:35
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 20:50
 Analyst: AJK
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	38.		mg/kg	0.64	0.090	10
1,2,4-Trimethylbenzene	51.		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-10
 Client ID: PB83-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:50
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 21:16
 Analyst: AJK
 Percent Solids: 80%

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	0.64		mg/kg	0.032	0.010	1
Toluene	0.24		mg/kg	0.064	0.035	1
Ethylbenzene	12.		mg/kg	0.064	0.0090	1
Isopropylbenzene	3.0		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	3.3		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1
Naphthalene	1.3		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	77		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-11
 Client ID: PB83-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:00
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 21:42
 Analyst: AJK
 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	0.036	J	mg/kg	0.061	0.033	1
Ethylbenzene	0.016	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	0.012	J	mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.015	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.12	0.020	1
Naphthalene	0.044	J	mg/kg	0.24	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	80		70-130
4-Bromofluorobenzene	322	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
 Client ID: PB83-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 17:22
 Analyst: AJK
 Percent Solids: 74%

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	0.00026	1
Benzene	ND		mg/kg	0.00063	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	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	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13
 Client ID: PB83-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:20
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 09:29
 Analyst: MV
 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	0.0039	0.00040	1
Benzene	ND		mg/kg	0.00098	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0039	0.00066	1
Naphthalene	ND		mg/kg	0.0079	0.0013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-14
 Client ID: PB43-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:40
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/03/21 18:14
 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	0.0028	0.00029	1
Benzene	ND		mg/kg	0.00071	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	0.0028	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00048	1
Naphthalene	ND		mg/kg	0.0057	0.00093	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-15
 Client ID: PB43-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:50
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 09:55
 Analyst: MV
 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	0.0019	0.00020	1
Benzene	0.0038		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00053	1
Ethylbenzene	0.00022	J	mg/kg	0.00097	0.00014	1
Isopropylbenzene	0.00087	J	mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.00090	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	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/29/21 18:00
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/29/21 15:07

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: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 19:49
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-17
 Client ID: FB-210625
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 12:00
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 06/29/21 18:06
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 06/29/21 15:07

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: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-17
 Client ID: FB-210625
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 12:00
 Date Received: 06/25/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/06/21 20:12
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/29/21 16:13
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-17 Batch: WG1518183-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,12,14 Batch: WG1520501-5					
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	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1520503-10					
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	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,09-11 Batch: WG1520503-5					
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	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1520600-5					
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	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,13,15 Batch: WG1520743-5					
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	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/06/21 19:26
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-17 Batch: WG1521186-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		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: L2134780

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-17 Batch: WG1518183-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,12,14 Batch: WG1520501-3 WG1520501-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,09-11 Batch: WG1520503-3 WG1520503-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		99		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1520503-8 WG1520503-9								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134780

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,13,15 Batch: WG1520743-3 WG1520743-4								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-17 Batch: WG1521186-3 WG1521186-4								
Methyl tert butyl ether	95		95		63-130	0		20
Benzene	99		94		70-130	5		20
Toluene	95		92		70-130	3		20
Ethylbenzene	96		93		70-130	3		20
Isopropylbenzene	96		92		70-130	4		20
1,3,5-Trimethylbenzene	94		92		64-130	2		20
1,2,4-Trimethylbenzene	93		93		70-130	0		20
Naphthalene	90		98		70-130	9		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	110		108		70-130
Toluene-d8	98		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		101		70-130

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-01

Date Collected: 06/25/21 08:30

Client ID: PB43-04-SS01

Date Received: 06/25/21

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	83.7		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-02

Date Collected: 06/25/21 08:55

Client ID: PB43-09-SS01

Date Received: 06/25/21

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	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-03

Date Collected: 06/25/21 09:05

Client ID: PB43-12-SS01

Date Received: 06/25/21

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	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-04

Date Collected: 06/25/21 09:20

Client ID: PB43-13-SS01

Date Received: 06/25/21

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	82.8		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-05

Date Collected: 06/25/21 09:35

Client ID: PB43-14-SS01

Date Received: 06/25/21

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	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-06

Date Collected: 06/25/21 09:45

Client ID: PB83-08-SS01

Date Received: 06/25/21

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	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-07

Date Collected: 06/25/21 10:05

Client ID: PB83-09-SS01

Date Received: 06/25/21

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	81.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-08

Date Collected: 06/25/21 10:20

Client ID: PB83-10-SS01

Date Received: 06/25/21

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	85.9		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09
Client ID: PB83-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:35
Date Received: 06/25/21
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	84.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-10

Date Collected: 06/25/21 10:50

Client ID: PB83-02-SS01

Date Received: 06/25/21

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	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-11

Date Collected: 06/25/21 11:00

Client ID: PB83-03-SS01

Date Received: 06/25/21

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	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
Client ID: PB83-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
Date Received: 06/25/21
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	74.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13
 Client ID: PB83-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:20
 Date Received: 06/25/21
 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	82.5		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**SAMPLE RESULTS**

Lab ID: L2134780-14

Date Collected: 06/25/21 11:40

Client ID: PB43-15-SS01

Date Received: 06/25/21

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	83.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-15

Date Collected: 06/25/21 11:50

Client ID: PB43-16-SS01

Date Received: 06/25/21

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	81.1		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134780

Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1517300-1 QC Sample: L2134746-01 Client ID: DUP Sample						
Solids, Total	79.4	80.4	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**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(*)
L2134780-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-01B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-02B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-03B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-04B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-05B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-06B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-06C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-06D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-07A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-07B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-08A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-08B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-09A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-09B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-10A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-10B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-11A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-11B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-12A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-12B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-13A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-13B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2134780**Project Number:** 200.00135.005.03**Report Date:** 07/08/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-13C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-13D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-14A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-14B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-15A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-15B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-16A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16C	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-16D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

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: L2134780
Report Date: 07/08/21

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: L2134780
Report Date: 07/08/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134780

Project Number: 200.00135.005.03

Report Date: 07/08/21

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 32

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

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:

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 per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

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

PADEP Storage Tank Program

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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 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															
34780-01	PB43-04-5501	6/25	0830	S	SS	<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"/>		4
-02	PB43-09-5501		0855			<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"/>		
-03	PB43-12-5501		0905			<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"/>		
-04	PB43-13-5501		0920			<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"/>		
-05	PB43-14-5501		0935			<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"/>		
-06	PB83-08-5501		0945			<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"/>		
-07	PB83-09-5501		1005			<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"/>		
-08	PB83-10-5501		1020			<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"/>		
-09	PB83-01-5501		1035			<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"/>		
-10	PB83-02-5501		1050			<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"/>	High PID(3000)	

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6/25 1445	<i>[Signature]</i>	6/25 1445
<i>[Signature]</i>	6/25 1800	<i>[Signature]</i>	6/25/21 1800
<i>[Signature]</i>	6/25/21	<i>[Signature]</i>	6/25/21 2300
<i>[Signature]</i>	6/26/21 0300	<i>[Signature]</i>	6/26/21 03:00

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.



CHAIN OF CUSTODY

PAGE 2 OF 2

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3266

Project Name: Philadelphia Refinery

Client Information

Client: Ransom Consulting, LLC

Project Location: Philadelphia, PA

Address: 2127 Hamilton Avenue

Project #: 200.00135.005.03

Trenton, NJ 08619

Project Manager: William Schmidt

Phone: 215-901-4974

ALPHA Quote #: 13161

Fax:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Email: William.Schmidt@ransomenv.com

These samples have been Previously analyzed by Alpha

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 3694

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

PADEP Storage Tank Program

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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 (4)	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															
34780-11	PB83-03-5501	6/25	1600	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"/>		4
-12	PB83-07-5501		1110	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"/>		4
-13	PB83-12-5501		1120	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"/>		4
-14	PB83-15-5501		1140	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"/>		4
-15	PB43-16-5501		1150	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"/>		4
-16	TB			W		<input type="checkbox"/>	<input 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"/>		4
-17	FB-210625		1206	W	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"/>		5

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.

PADEP Short List Analytical List:

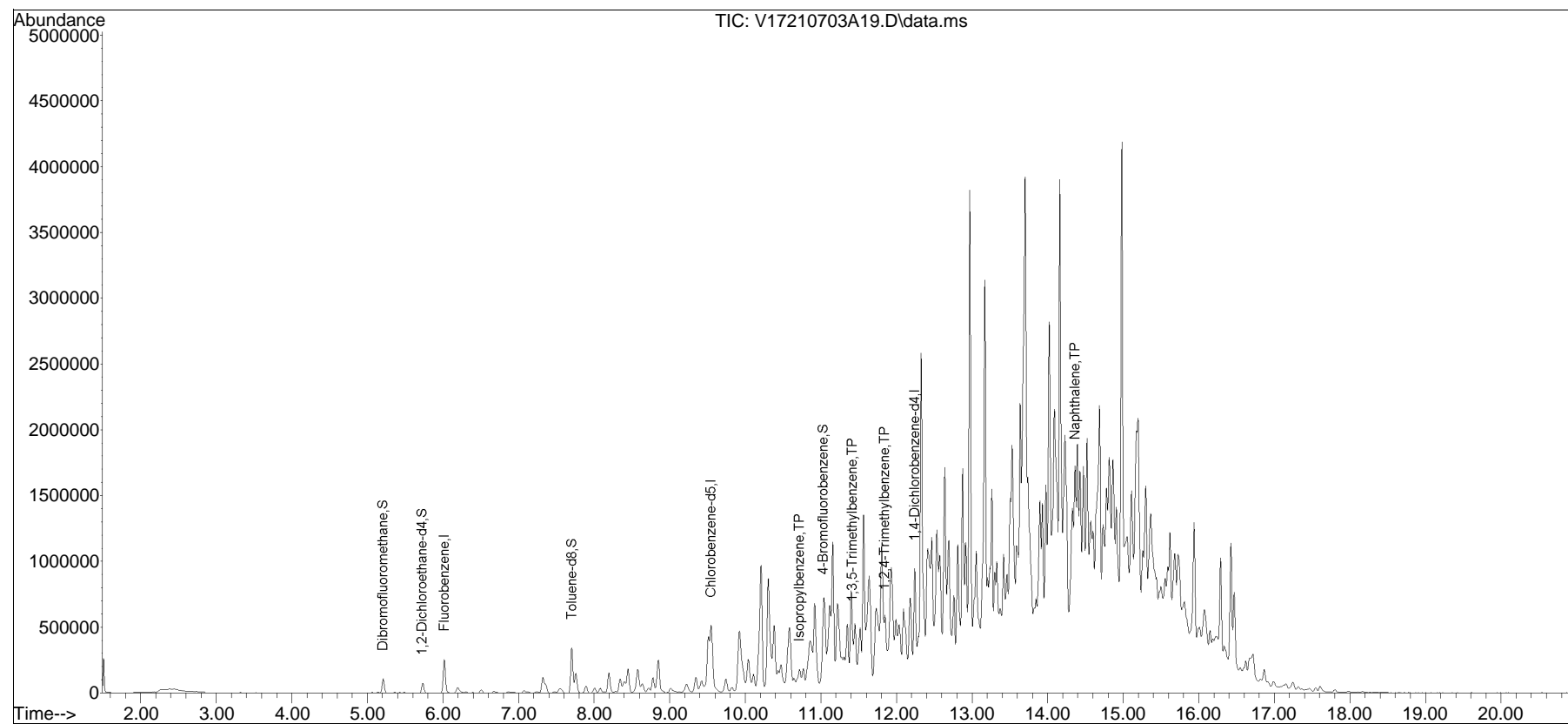
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 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 (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), 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 (Method 8270), 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\VOA117\2021\210703A\
Data File : V17210703A19.D
Acq On : 03 Jul 2021 07:32 pm
Operator : VOA117:AJK
Sample : L2134780-03,31H,6.51,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 04 14:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

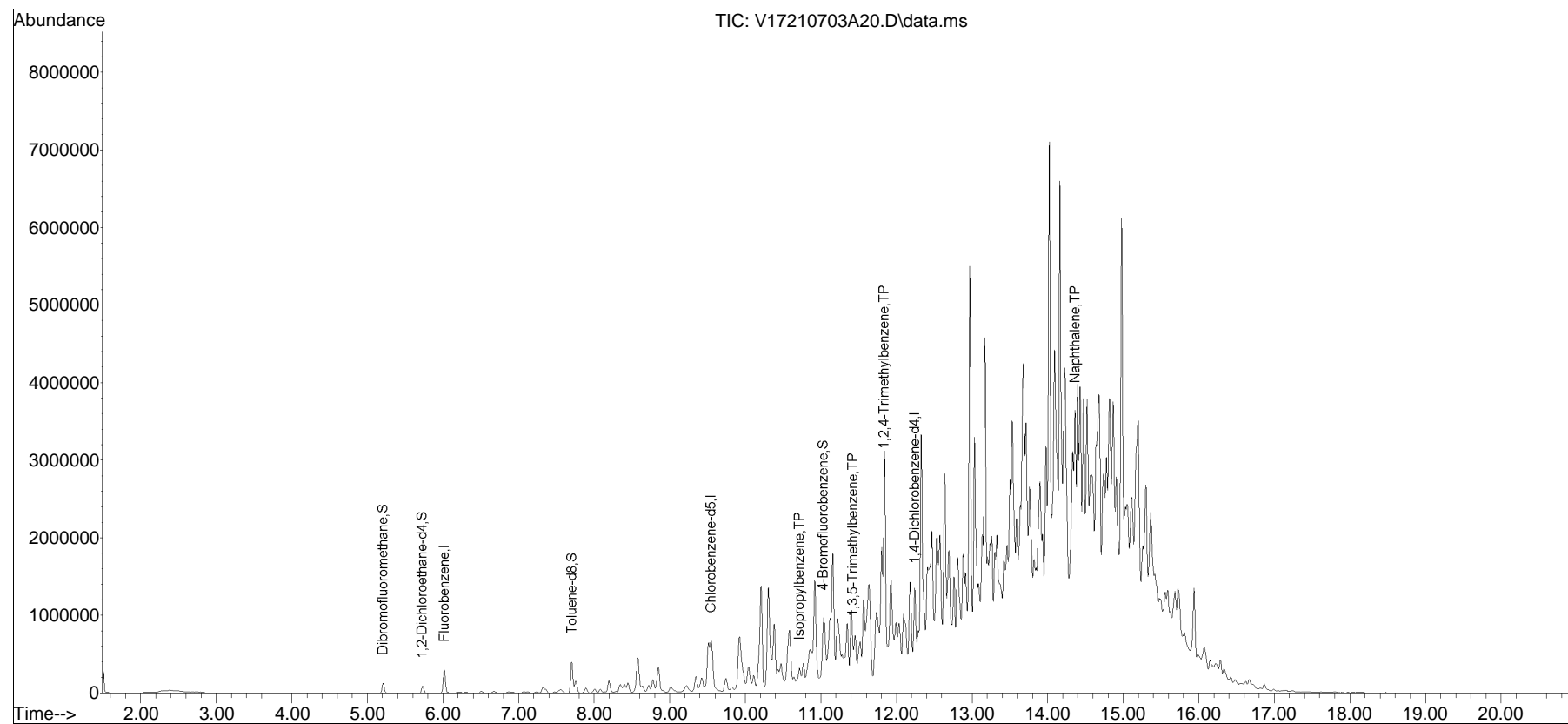


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A20.D
Acq On : 03 Jul 2021 07:58 pm
Operator : VOA117:AJK
Sample : L2134780-04,31H,6.18,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 04 14:13:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

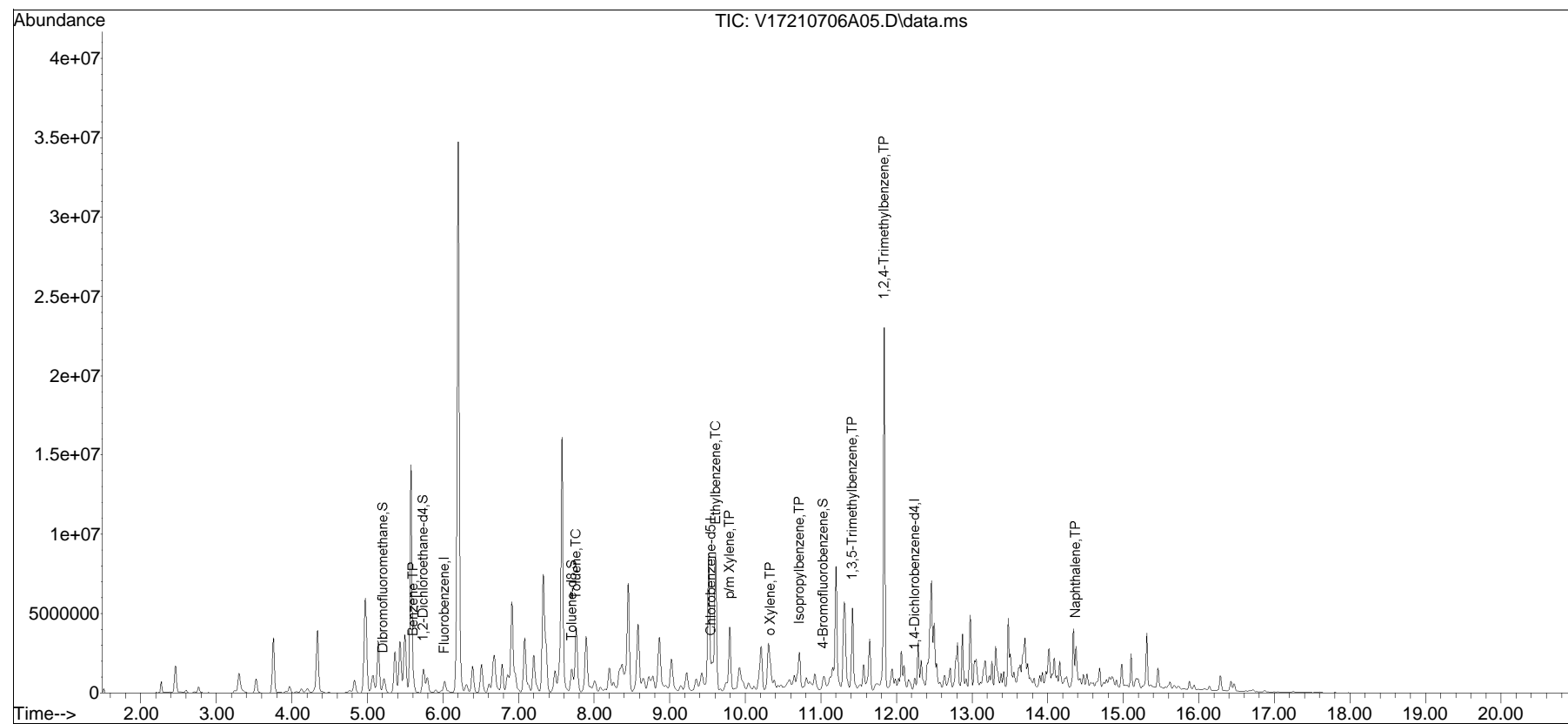


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210706A\
Data File : V17210706A05.D
Acq On : 06 Jul 2021 08:36 am
Operator : VOA117:MV
Sample : L2134780-09D2,31H,5.48,5,0.050,,A
Misc : WG1520503,ICAL18099
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 06 09:43:08 2021
Quant Method : I:\VOLATILES\VOA117\2021\210706A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list06A\V17210706A01.D•

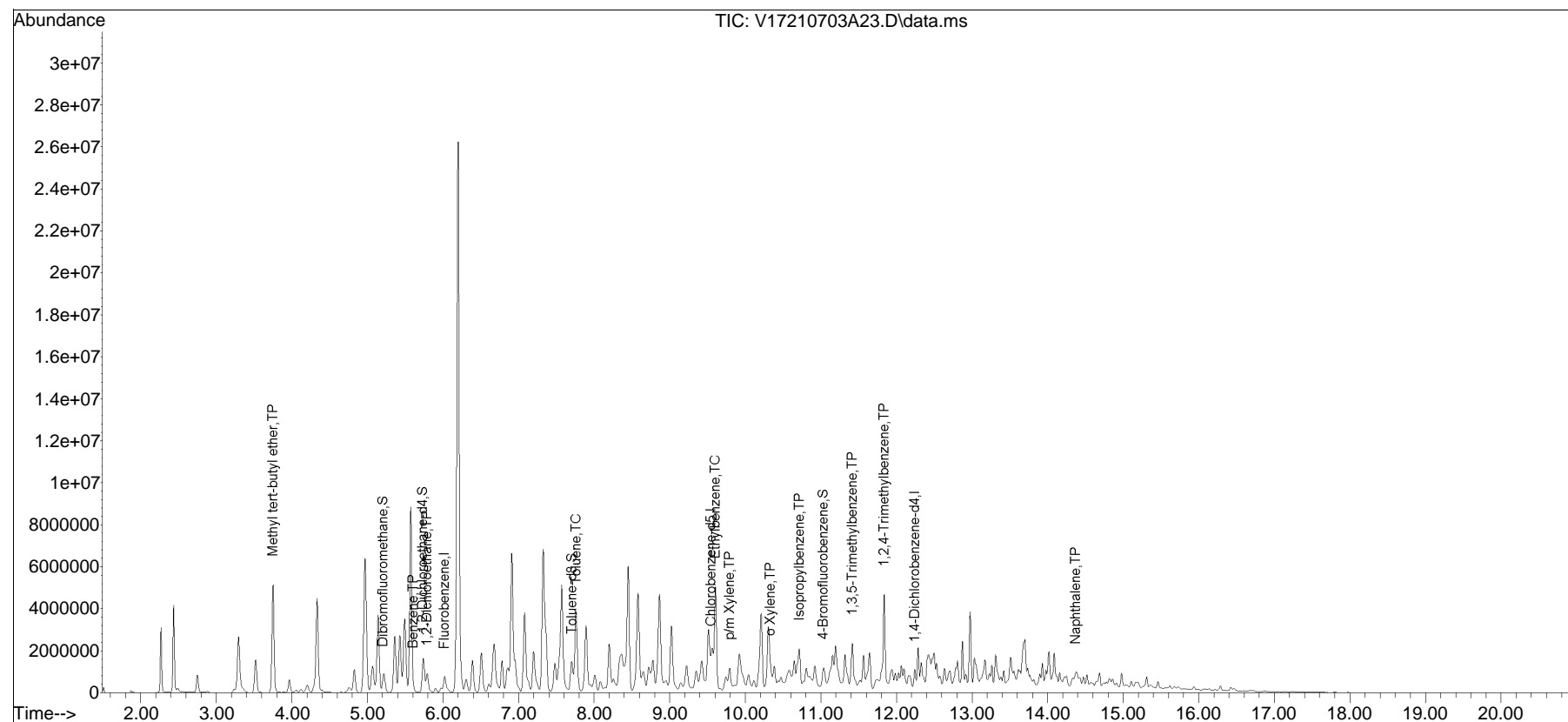


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
 Data File : V17210703A23.D
 Acq On : 03 Jul 2021 09:16 pm
 Operator : VOA117:AJK
 Sample : L2134780-10,31H,6.05,5,0.100,,A
 Misc : WG1520503,ICAL18099
 ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 04 14:30:43 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

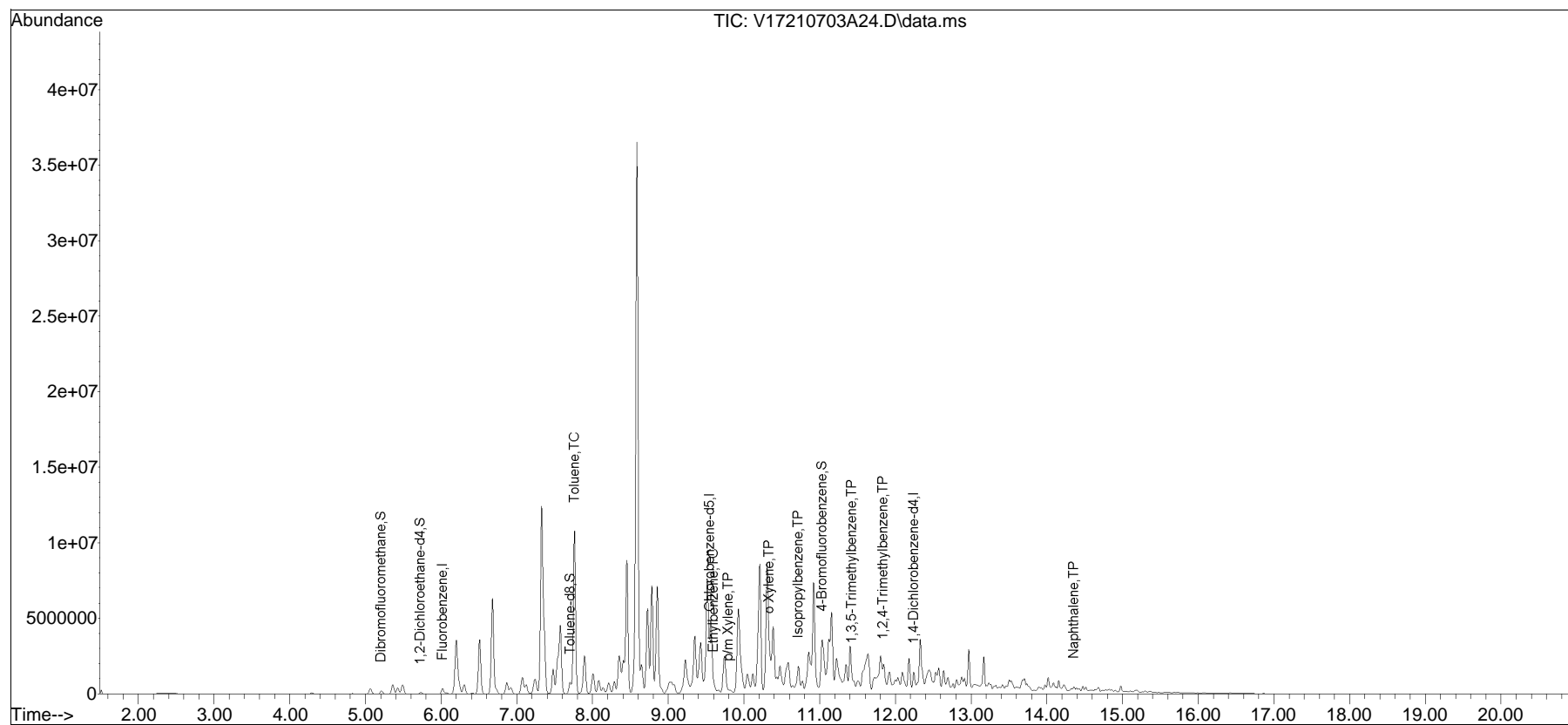


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A24.D
Acq On : 03 Jul 2021 09:42 pm
Operator : VOA117:AJK
Sample : L2134780-11,31H,5.90,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 04 14:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•





ANALYTICAL REPORT

Lab Number:	L2137252
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:	07/19/21

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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: L2137252
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2137252-01	PB85-01-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:40	07/12/21
L2137252-02	PB85-02-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:50	07/12/21
L2137252-03	PB85-06-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:10	07/12/21
L2137252-04	PB85-07-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:20	07/12/21
L2137252-05	PB85-08-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:40	07/12/21
L2137252-06	PB85-03-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:55	07/12/21
L2137252-07	PB85-04-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:10	07/12/21
L2137252-08	PB85-05-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:20	07/12/21
L2137252-09	PB85-10-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:40	07/12/21
L2137252-10	PB85-16-SS01	SOIL	PHILADELPHIA, PA	07/12/21 11:00	07/12/21
L2137252-11	PB85-13-SS01	SOIL	PHILADELPHIA, PA	07/12/21 12:30	07/12/21
L2137252-12	PB85-14-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:00	07/12/21
L2137252-13	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:50	07/12/21
L2137252-14	FB-210712	WATER	PHILADELPHIA, PA	07/12/21 14:30	07/12/21
L2137252-15	TB	WATER	PHILADELPHIA, PA	07/12/21 00:00	07/12/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

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: L2137252
Report Date: 07/19/21

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.

Sample Receipt

L2137252-13: The container for Total Solids was received empty; the analysis could not be performed. At the client's request the sample was canceled.

L2137252-14 and -15: Sample containers 504/8011 analysis were received for the samples, but were not listed on the chain of custody. The analysis was not performed.

Volatile Organics

L2137252-03 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (64%) and dibromofluoromethane (66%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) 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.

L2137252-03, -05, -06, and -07: 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.

L2137252-04, -09, and -10: 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.

L2137252-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); 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.

L2137252-05 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (57%) and 4-bromofluorobenzene (576%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol. The results of both analyses are

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Case Narrative (continued)

reported.

L2137252-06 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (318%) and the surrogate recoveries for toluene-d8 (48%) and 4-bromofluorobenzene (1880%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.

L2137252-07 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (282%) and the surrogate recovery for toluene-d8 (40%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2137252-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (427%); 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.

L2137252-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (267%); 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.

L2137252-11 (Low): The internal standard (IS) response(s) for fluorobenzene (201%), chlorobenzene-d5 (291%) and the surrogate recovery for 4-bromofluorobenzene (394%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2137252-12 (Low): The internal standard (IS) response(s) for fluorobenzene (341%), chlorobenzene-d5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Case Narrative (continued)

(471%) and the surrogate recovery for 1,2-dichloroethane-d4 (184%), toluene-d8 (844%), 4-bromofluorobenzene (1796%) and dibromofluoromethane (135%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported. L2137252-15: The pH of the sample was greater than two; however, the sample was analyzed within the method required holding time.

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: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
 Client ID: PB85-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 08:40
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 09:29
 Analyst: MV
 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	0.0031	0.00031	1
Benzene	0.018		mg/kg	0.00077	0.00026	1
Toluene	ND		mg/kg	0.0015	0.00084	1
Ethylbenzene	0.00061	J	mg/kg	0.0015	0.00022	1
Isopropylbenzene	0.0016		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.00046	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00051	1
Naphthalene	ND		mg/kg	0.0062	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-02
 Client ID: PB85-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 08:50
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 17:38
 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	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00041	0.00014	1
Toluene	ND		mg/kg	0.00082	0.00044	1
Ethylbenzene	ND		mg/kg	0.00082	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00027	1
Naphthalene	ND		mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03
 Client ID: PB85-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:10
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 18:04
 Analyst: JC
 Percent Solids: 75%

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	2.4	E	mg/kg	0.0011	0.00059	1
Ethylbenzene	0.68	E	mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.067		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.35	E	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.74	E	mg/kg	0.0022	0.00036	1
Naphthalene	0.033		mg/kg	0.0044	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	64	Q	70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	66	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03 D
 Client ID: PB85-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:10
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 08:12
 Analyst: MV
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	4
Benzene	3.1		mg/kg	0.15	0.050	4
Toluene	34.		mg/kg	0.30	0.16	4
Ethylbenzene	2.6		mg/kg	0.30	0.042	4
Isopropylbenzene	0.12	J	mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	0.32	J	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	1.2		mg/kg	0.60	0.10	4
Naphthalene	ND		mg/kg	1.2	0.19	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-04
 Client ID: PB85-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:20
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 20:40
 Analyst: JC
 Percent Solids: 75%

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	0.014	J	mg/kg	0.035	0.012	1
Toluene	0.080		mg/kg	0.069	0.038	1
Ethylbenzene	ND		mg/kg	0.069	0.0098	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.022	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.14	0.023	1
Naphthalene	0.34		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	211	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
 Client ID: PB85-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:40
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 21:06
 Analyst: JC
 Percent Solids: 81%

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
Toluene	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.028	J	mg/kg	0.062	0.0068	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
Naphthalene	0.60		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
 Client ID: PB85-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:40
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 09:55
 Analyst: MV
 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	0.0022	0.00023	1
Benzene	ND		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	0.017		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00034	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1
Naphthalene	0.028		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	57	Q	70-130
4-Bromofluorobenzene	576	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-06
 Client ID: PB85-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:55
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 21:32
 Analyst: JC
 Percent Solids: 80%

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	0.013	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	0.59		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
Naphthalene	1.6		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-06
 Client ID: PB85-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:55
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 11:39
 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	0.00038	J	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	0.34		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	0.012		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	48	Q	70-130
4-Bromofluorobenzene	1880	Q	70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
 Client ID: PB85-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:10
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 21:58
 Analyst: JC
 Percent Solids: 80%

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	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.073		mg/kg	0.062	0.0067	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
Naphthalene	0.30		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
 Client ID: PB85-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:10
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 10:21
 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	0.0019	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	0.13		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0095		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	40	Q	70-130
4-Bromofluorobenzene	702	Q	70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-08
 Client ID: PB85-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:20
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 10:47
 Analyst: KJD
 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	0.0018	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	0.00024	J	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
Naphthalene	0.0024	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
 Client ID: PB85-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:40
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 22:24
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.038	J	mg/kg	0.040	0.013	1
Toluene	0.059	J	mg/kg	0.080	0.043	1
Ethylbenzene	ND		mg/kg	0.080	0.011	1
Isopropylbenzene	1.8		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.16	0.027	1
Naphthalene	0.33		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	74		70-130
4-Bromofluorobenzene	427	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-10
 Client ID: PB85-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 11:00
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 23:16
 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	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	ND		mg/kg	0.066	0.036	1
Ethylbenzene	ND		mg/kg	0.066	0.0094	1
Isopropylbenzene	1.5		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1
Naphthalene	0.38		mg/kg	0.26	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	267	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11
 Client ID: PB85-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 12:30
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/13/21 23:42
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.17	0.017	1
Benzene	0.10		mg/kg	0.043	0.014	1
Toluene	ND		mg/kg	0.086	0.047	1
Ethylbenzene	0.14		mg/kg	0.086	0.012	1
Isopropylbenzene	0.21		mg/kg	0.086	0.0094	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.21	J	mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11
 Client ID: PB85-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 12:30
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 11:13
 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	0.0059		mg/kg	0.0024	0.00024	1
Benzene	0.060		mg/kg	0.00059	0.00020	1
Toluene	0.018		mg/kg	0.0012	0.00064	1
Ethylbenzene	0.12		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.36	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0096		mg/kg	0.0024	0.00039	1
Naphthalene	0.11		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	394	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12
 Client ID: PB85-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 13:00
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 00:09
 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	0.014	J	mg/kg	0.10	0.010	1
Benzene	0.074		mg/kg	0.026	0.0087	1
Toluene	ND		mg/kg	0.052	0.028	1
Ethylbenzene	0.15		mg/kg	0.052	0.0074	1
Isopropylbenzene	0.71		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1
Naphthalene	0.41		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12
 Client ID: PB85-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 13:00
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/14/21 12:32
 Analyst: KJD
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0044		mg/kg	0.0023	0.00023	1
Benzene	0.062		mg/kg	0.00058	0.00019	1
Toluene	0.018		mg/kg	0.0012	0.00063	1
Ethylbenzene	0.23		mg/kg	0.0012	0.00016	1
Isopropylbenzene	0.84	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0056		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.023		mg/kg	0.0023	0.00039	1
Naphthalene	0.024		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	184	Q	70-130
Toluene-d8	844	Q	70-130
4-Bromofluorobenzene	1800	Q	70-130
Dibromofluoromethane	135	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-14
 Client ID: FB-210712
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 14:30
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/15/21 12:35
 Analyst: LAC

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-15
 Client ID: TB
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 00:00
 Date Received: 07/12/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/16/21 11:09
 Analyst: TMS

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/13/21 17:12
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1523623-5					
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	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/13/21 17:12
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-07,09-12 Batch: WG1523625-5					
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	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1524092-5					
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	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-08,11-12 Batch: WG1524093-5					
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	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/15/21 09:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14 Batch: WG1524413-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/16/21 10:43
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1524763-5					
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1523623-3 WG1523623-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	103		104		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-07,09-12 Batch: WG1523625-3 WG1523625-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	102		104		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

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 Batch: WG1524092-3 WG1524092-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-08,11-12 Batch: WG1524093-3 WG1524093-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14 Batch: WG1524413-3 WG1524413-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	100		100		70-130	0		20
Toluene	99		100		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	96		99		64-130	3		20
1,2,4-Trimethylbenzene	97		99		70-130	2		20
Naphthalene	78		83		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		110		70-130
Dibromofluoromethane	108		108		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1524763-3 WG1524763-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	94		94		70-130	0		20
Toluene	96		93		70-130	3		20
Ethylbenzene	94		91		70-130	3		20
Isopropylbenzene	93		92		70-130	1		20
1,3,5-Trimethylbenzene	92		90		64-130	2		20
1,2,4-Trimethylbenzene	92		89		70-130	3		20
Naphthalene	83		83		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	107		108		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	109		114		70-130

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
 Client ID: PB85-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 08:40
 Date Received: 07/12/21
 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	80.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-02

Date Collected: 07/12/21 08:50

Client ID: PB85-02-SS01

Date Received: 07/12/21

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	82.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03

Date Collected: 07/12/21 09:10

Client ID: PB85-06-SS01

Date Received: 07/12/21

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	74.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2137252-04

Date Collected: 07/12/21 09:20

Client ID: PB85-07-SS01

Date Received: 07/12/21

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	74.7		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
 Client ID: PB85-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:40
 Date Received: 07/12/21
 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	81.1		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2137252-06

Date Collected: 07/12/21 09:55

Client ID: PB85-03-SS01

Date Received: 07/12/21

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	79.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
 Client ID: PB85-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:10
 Date Received: 07/12/21
 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	80.2		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-08

Date Collected: 07/12/21 10:20

Client ID: PB85-05-SS01

Date Received: 07/12/21

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	-	07/13/21 08:32	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
 Client ID: PB85-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:40
 Date Received: 07/12/21
 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	73.8		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2137252-10

Date Collected: 07/12/21 11:00

Client ID: PB85-16-SS01

Date Received: 07/12/21

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	83.0		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11

Date Collected: 07/12/21 12:30

Client ID: PB85-13-SS01

Date Received: 07/12/21

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	80.1		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**SAMPLE RESULTS**

Lab ID: L2137252-12

Date Collected: 07/12/21 13:00

Client ID: PB85-14-SS01

Date Received: 07/12/21

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	85.3		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2137252

Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523177-1 QC Sample: L2137330-04 Client ID: DUP Sample						
Solids, Total	80.6	83.0	%	3		20
General Chemistry - Westborough Lab Associated sample(s): 09-12 QC Batch ID: WG1523195-1 QC Sample: L2137210-01 Client ID: DUP Sample						
Solids, Total	88.1	88.4	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**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(*)
L2137252-01A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-01B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-02A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-02B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-03A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-03B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-04A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-04B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-05A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-05B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-06A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-06B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-06C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-06D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-07A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-07B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-08A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-08B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-09A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-09B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-10A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-10B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-11A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-11B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-12A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-12B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-13A	Vial MeOH preserved	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2137252-13B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2137252**Project Number:** 200.00135.005.03**Report Date:** 07/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-13C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)
L2137252-13D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		ARCHIVE()
L2137252-14A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14C	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-14E	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-15A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15C	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)
L2137252-15D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)

Container Comments

L2137252-13D Container received empty

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

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: L2137252
Report Date: 07/19/21

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
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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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2137252

Project Number: 200.00135.005.03

Report Date: 07/19/21

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-Terpeneol

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-Terpeneol; 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

Date Rec'd in Lab: **7/13/21** ALPHA Job #: **L2137252**

Report Information Data Deliverables: FAX EMAIL Add'l Deliverables
 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	TOTAL # BOTTLES
<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"/> Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do (Please specify below)	
<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"/>	Sample Specific Comments	
<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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<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"/>		

Westborough, MA TEL: 508-898-9220
 Mansfield, MA TEL: 508-822-5300
 FAX: 508-898-9193 FAX: 508-822-3269

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974
 Fax: _____
 Email: William.Schmidt@ransomenv.com

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: _____

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
		Date	Time		
37252-01	PB85-01-5501	7/12	0840	S	TS
02	PB85-02-5501		0850		TS
03	PB85-06-5501		0910		TS
04	PB85-07-5501		0920		TS
05	PB85-08-5501		0940		TS
06	PB85-03-5501		0955		TS
07	PB85-04-5501		1010		TS
08	PB85-05-5501		1020		TS
09	PB85-10-5501		1040		TS
10	PB85-16-5501		1100		TS

Container Type	G	G	G	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: **7/12/21 15:43**
 Received By: *[Signature]* Date/Time: **7/12/21 22:00**
[Signature] 7/13/21 02:30 *[Signature]* 7/13/21 02:30

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: 01-011-(A) Rev 5-JAN-13

PADEP Short List Analytical List:

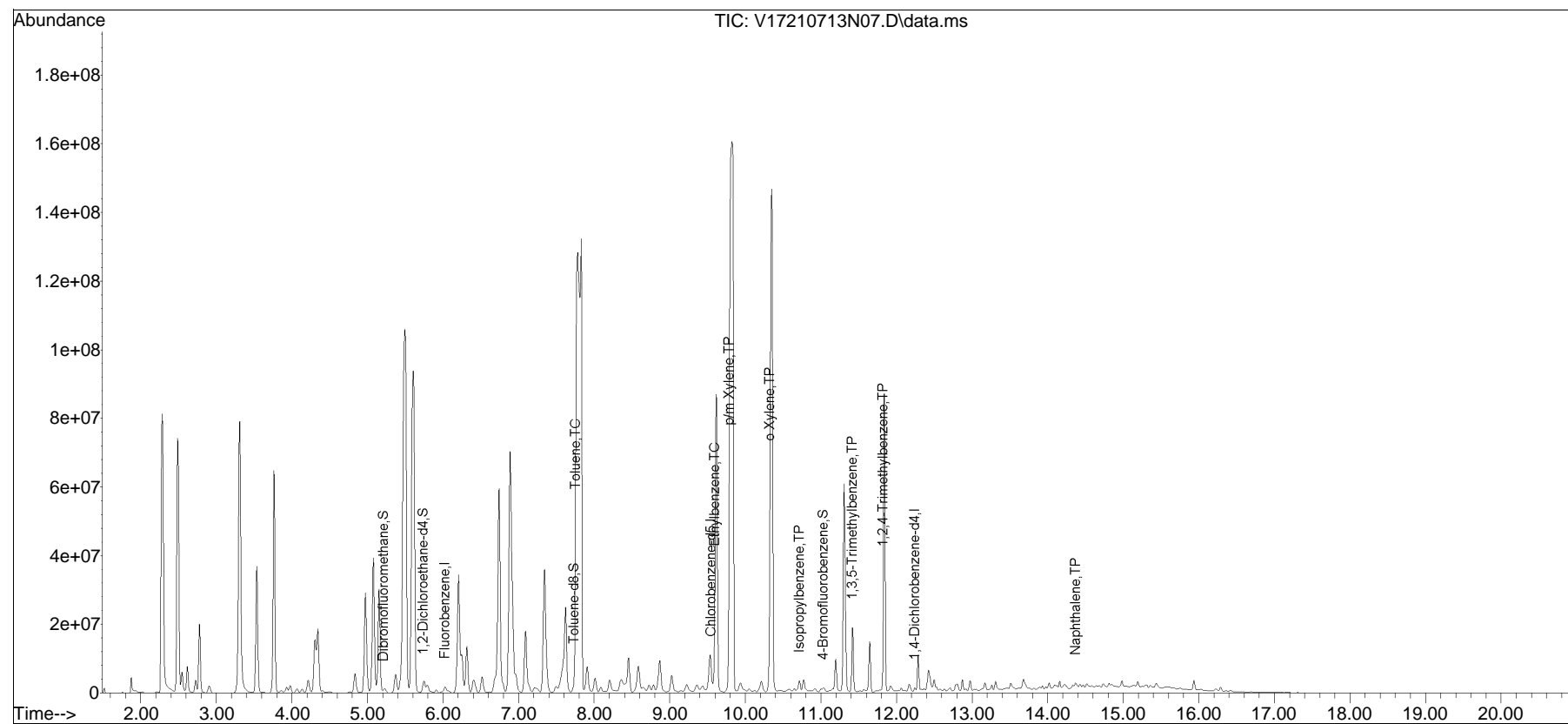
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl 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\VOA117\2021\210713N\
Data File : V17210713N07.D
Acq On : 13 Jul 2021 06:04 pm
Operator : VOA117:JC
Sample : L2137252-03,31,6.13,5,,B
Misc : WG1523623,ICAL18099
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 14 07:08:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

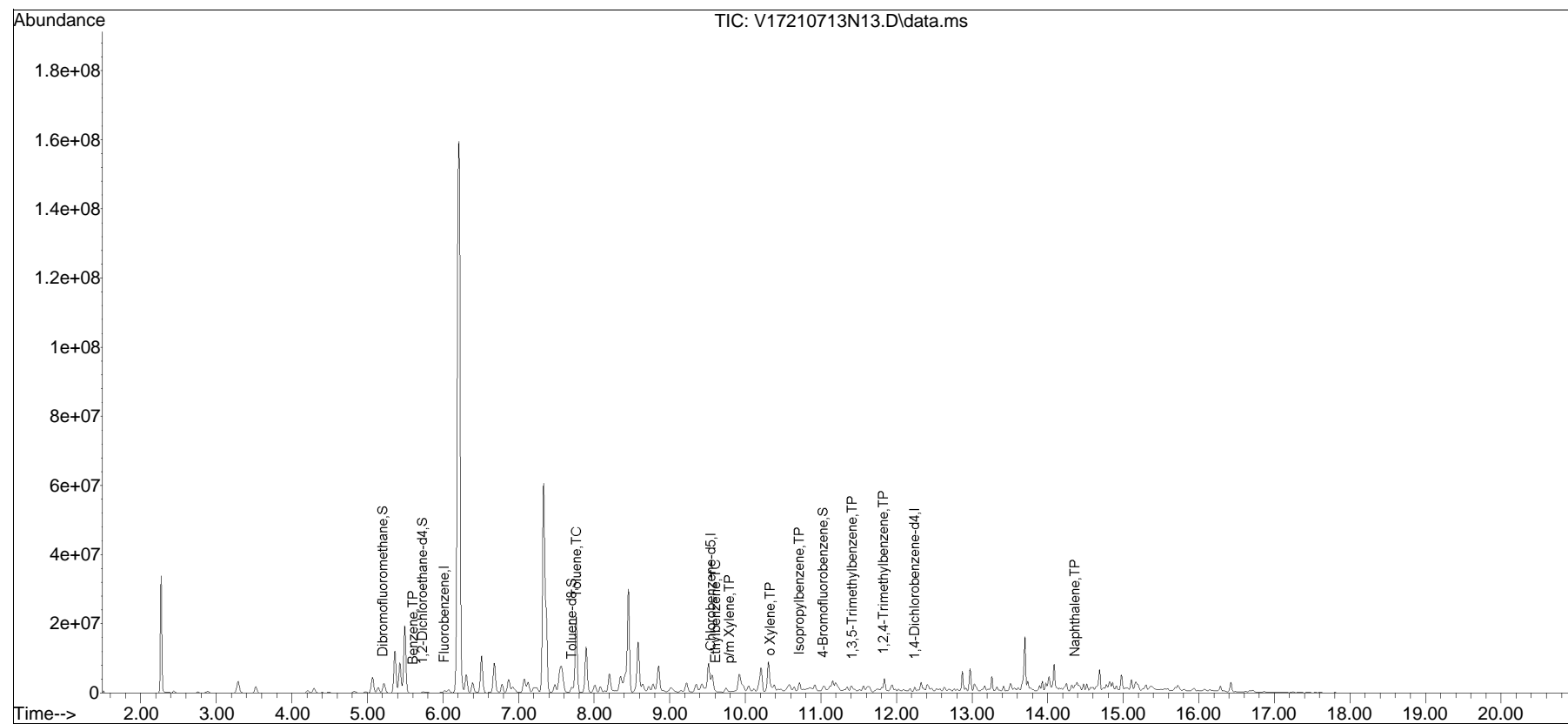


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N13.D
Acq On : 13 Jul 2021 08:40 pm
Operator : VOA117:JC
Sample : L2137252-04,31H,6.37,5,0.100,,A
Misc : WG1523625,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 14 07:12:48 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

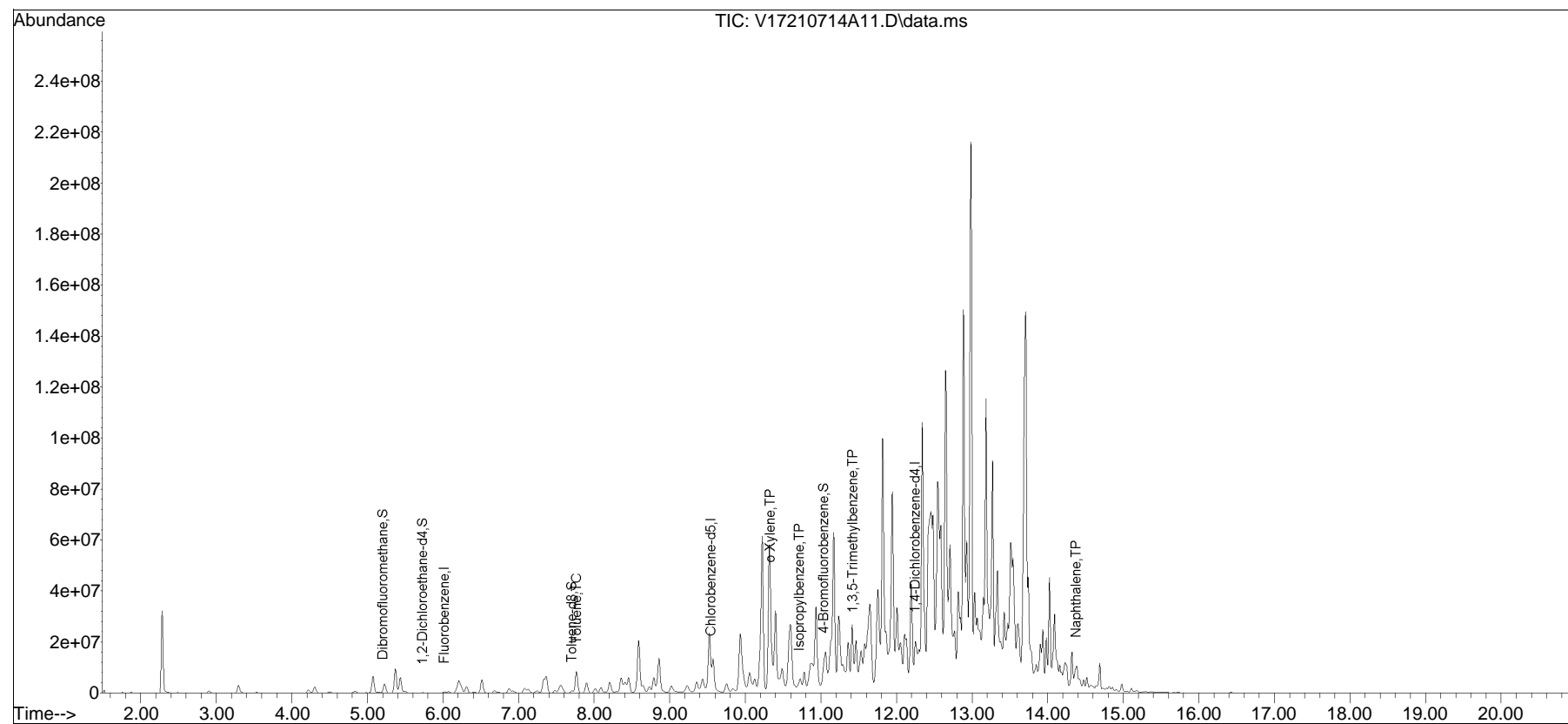


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A11.D
Acq On : 14 Jul 2021 09:55 am
Operator : VOA117:MV
Sample : L2137252-05,31,5.47,5,,B
Misc : WG1524093,ICAL18099
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 15 09:33:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

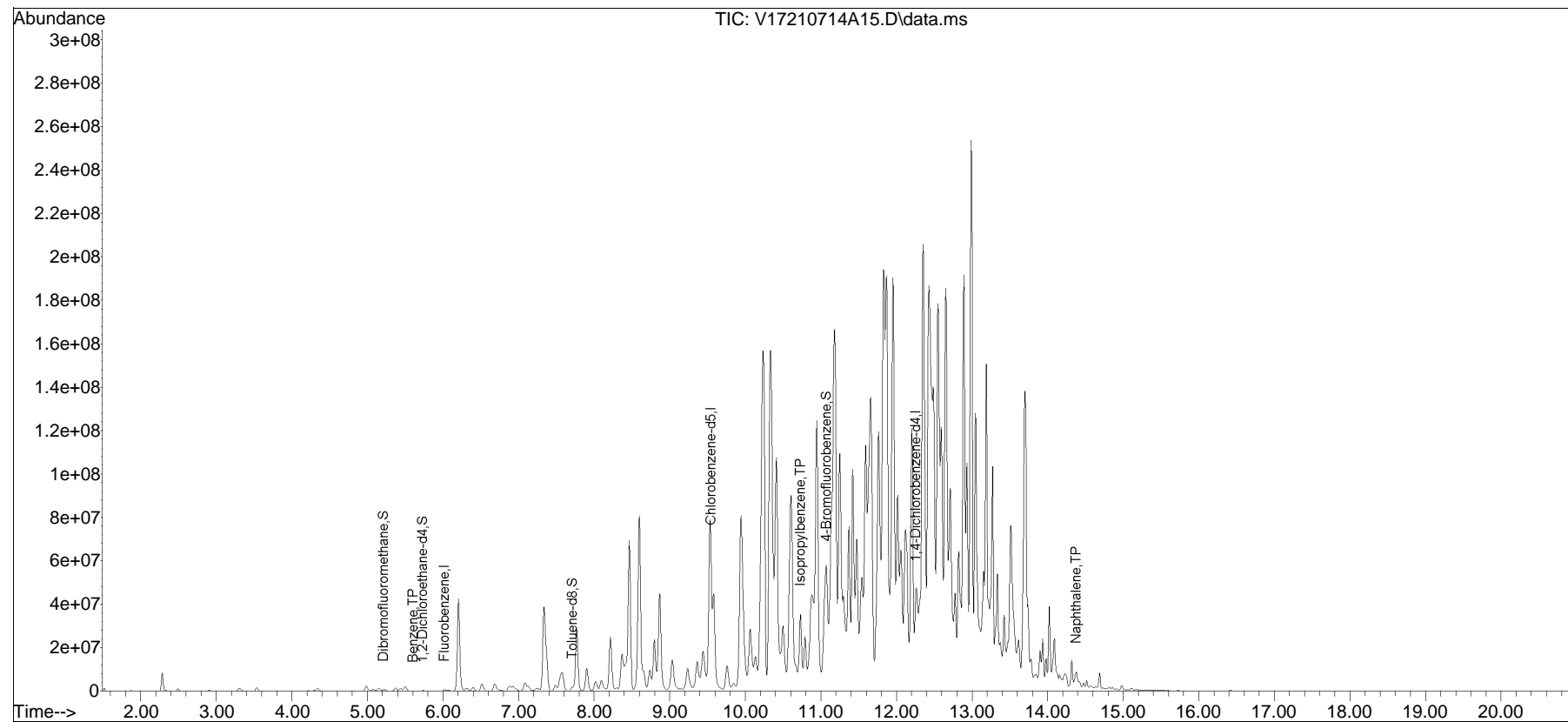


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A15.D
Acq On : 14 Jul 2021 11:39 am
Operator : VOA117:KJD
Sample : L2137252-06,31,5.46,5,,C
Misc : WG1524093,ICAL18099
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 14 20:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

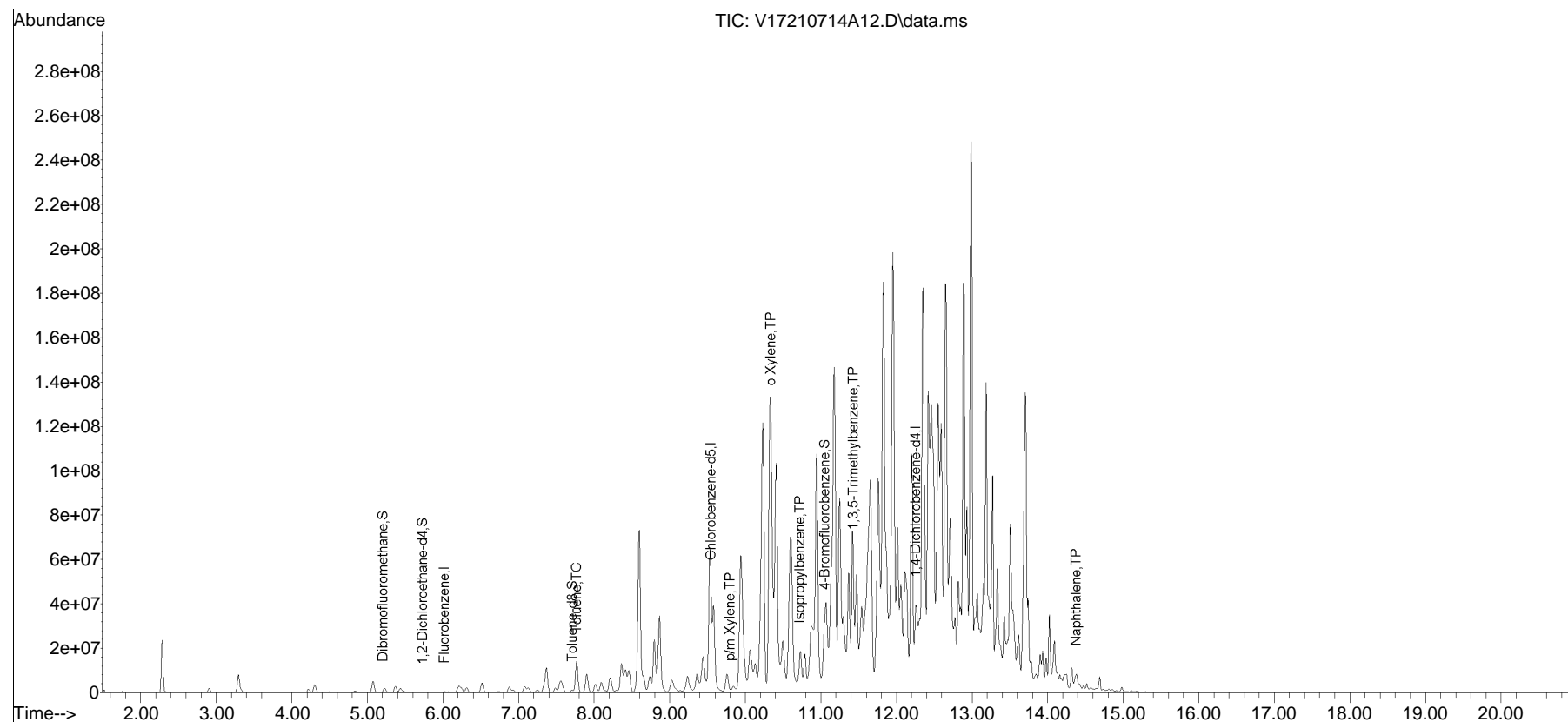


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A12.D
Acq On : 14 Jul 2021 10:21 am
Operator : VOA117:MV
Sample : L2137252-07,31,6.58,5,,C
Misc : WG1524093,ICAL18099
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 15 10:04:32 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

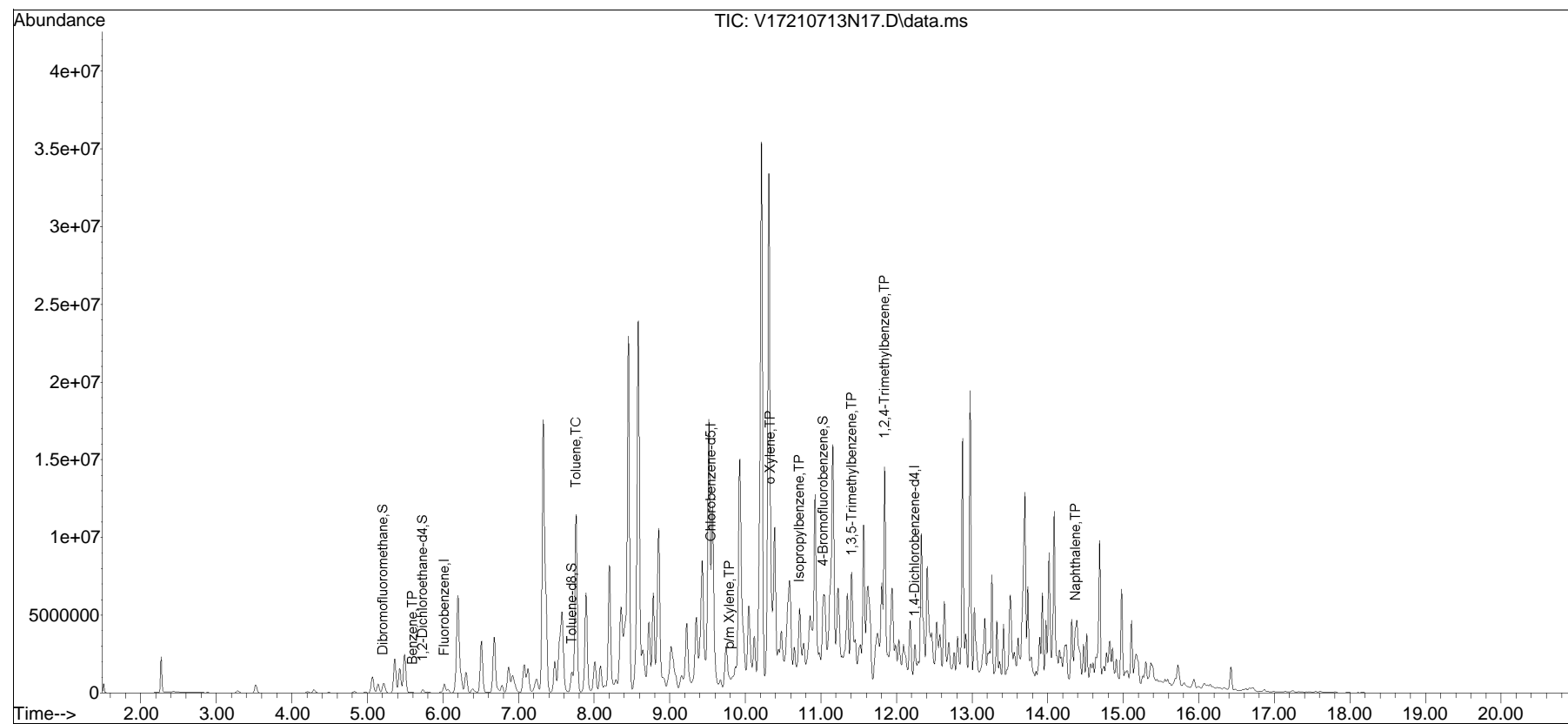


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N17.D
Acq On : 13 Jul 2021 10:24 pm
Operator : VOA117:JC
Sample : L2137252-09,31H,5.47,5,0.100,,A
Misc : WG1523625,ICAL18099
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 14 07:15:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

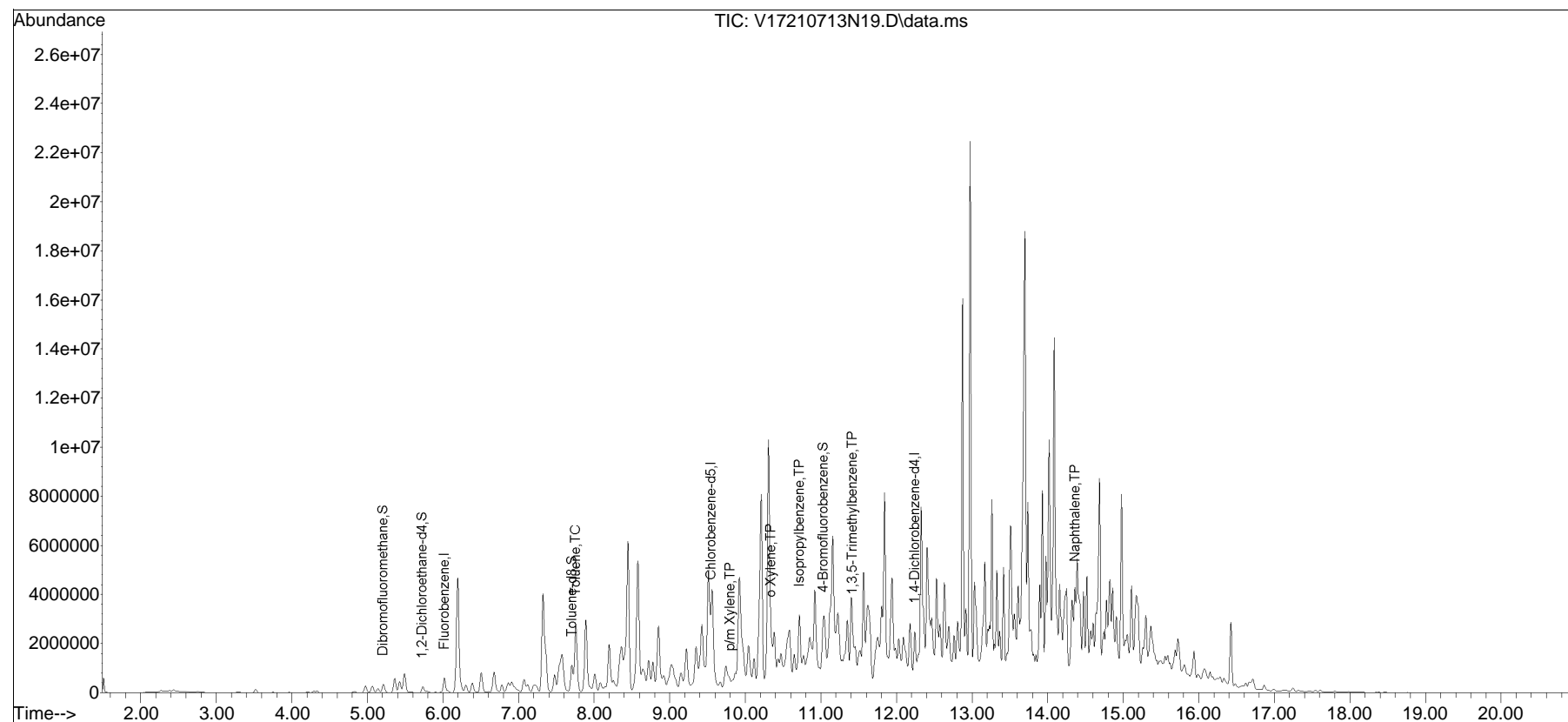


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N19.D
Acq On : 13 Jul 2021 11:16 pm
Operator : VOA117:JC
Sample : L2137252-10,31H,5.36,5,0.100,,A
Misc : WG1523625,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 14 07:16:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

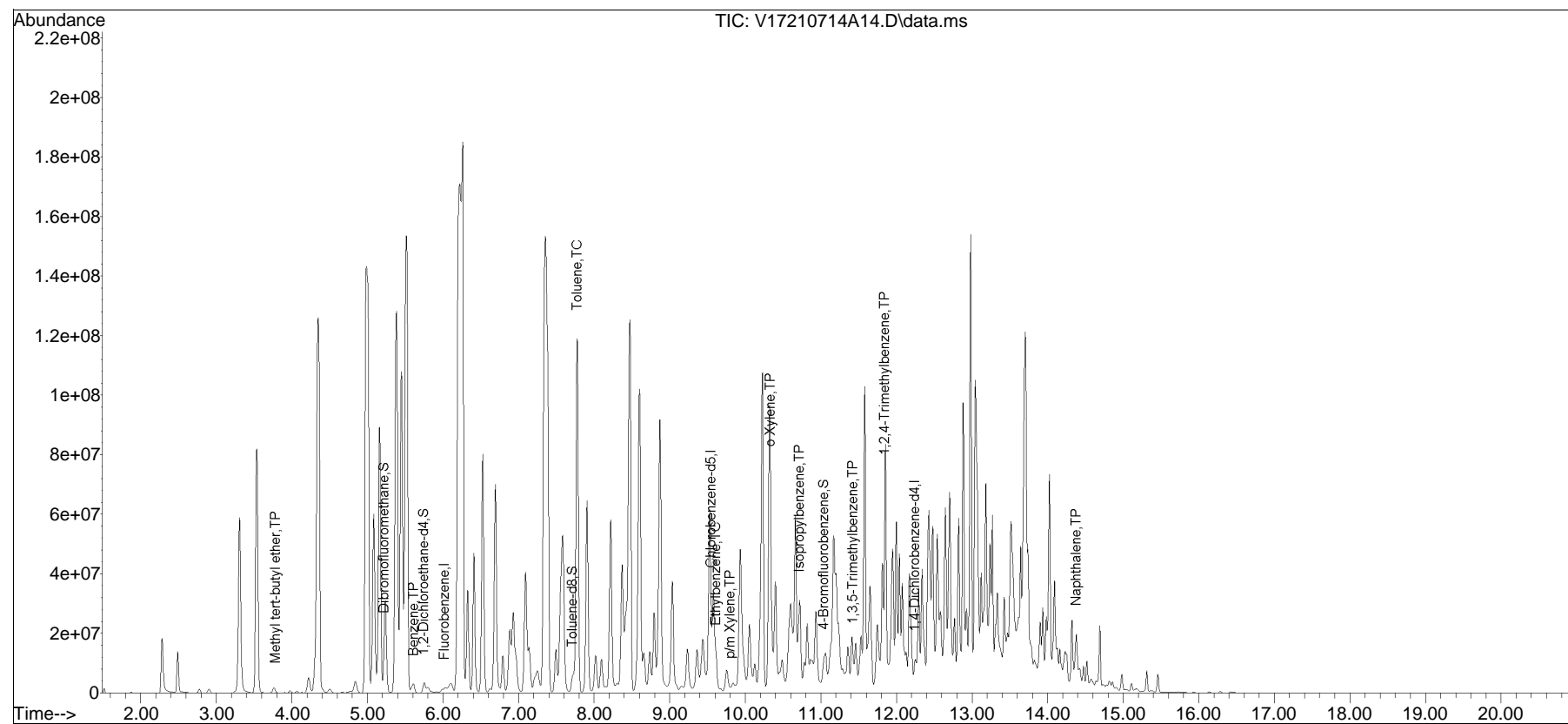


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A14.D
Acq On : 14 Jul 2021 11:13 am
Operator : VOA117:KJD
Sample : L2137252-11,31,5.30,5,,B
Misc : WG1524093,ICAL18099
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 14 20:29:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

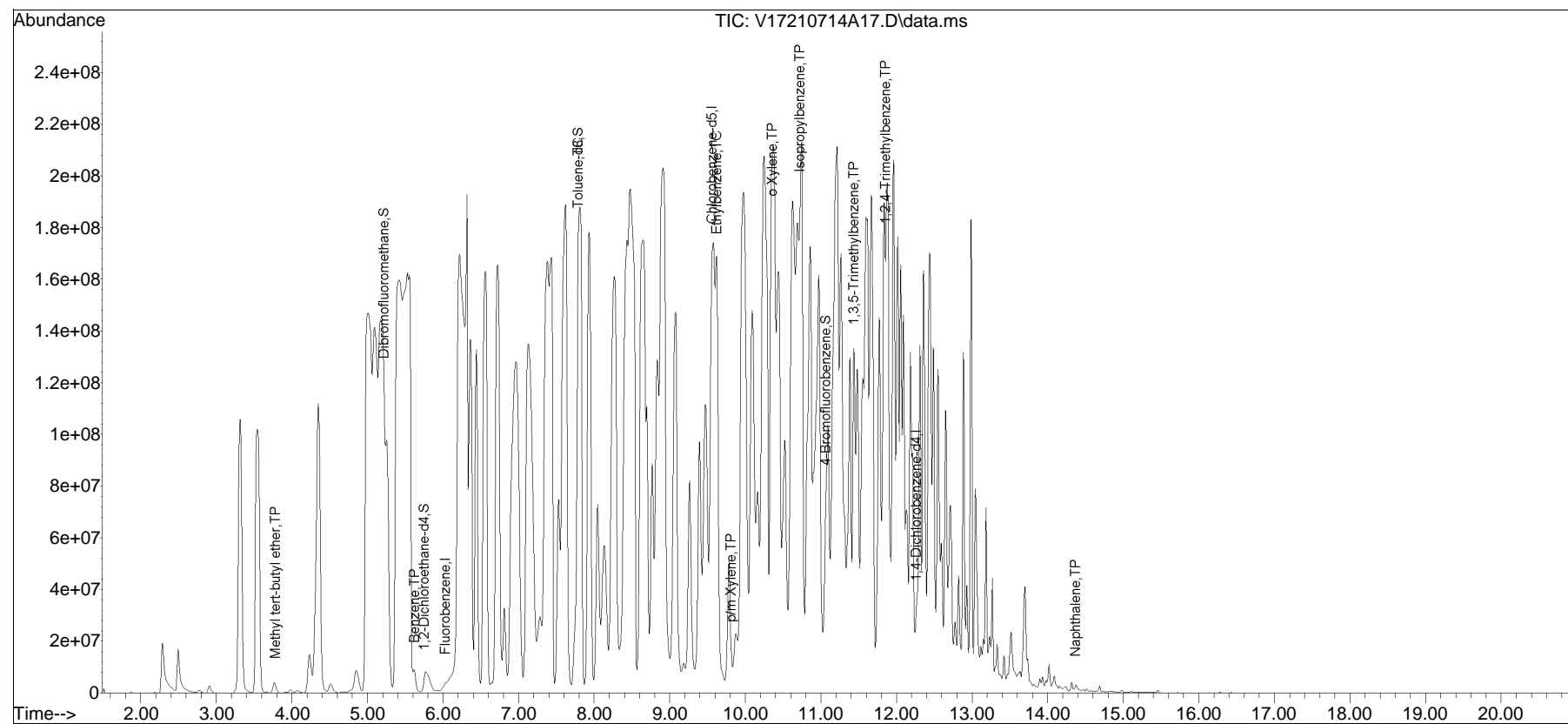


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
 Data File : V17210714A17.D
 Acq On : 14 Jul 2021 12:32 pm
 Operator : VOA117:KJD
 Sample : L2137252-12,31,5.07,5,,B
 Misc : WG1524093,ICAL18099
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 14 20:41:17 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•





ANALYTICAL REPORT

Lab Number:	L2138177
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:	08/10/21

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: L2138177
Report Date: 08/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-01	PB121-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:35	07/15/21
L2138177-02	PB121-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:45	07/15/21
L2138177-03	PB121-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:55	07/15/21
L2138177-04	PB121-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:05	07/15/21
L2138177-05	PB121-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:10	07/15/21
L2138177-06	PB121-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:20	07/15/21
L2138177-07	PB121-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:35	07/15/21
L2138177-08	PB121-14-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:45	07/15/21
L2138177-09	PB121-15-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:55	07/15/21
L2138177-10	PB121-16-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:10	07/15/21
L2138177-11	PB39-01-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:55	07/15/21
L2138177-12	PB39-02-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:05	07/15/21
L2138177-13	PB39-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:20	07/15/21
L2138177-14	PB39-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:30	07/15/21
L2138177-15	PB39-05-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:35	07/15/21
L2138177-16	PB39-06-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:45	07/15/21
L2138177-17	PB39-07-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:55	07/15/21
L2138177-18	PB85-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 12:05	07/15/21
L2138177-19	PB39-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:15	07/15/21
L2138177-20	PB39-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:25	07/15/21
L2138177-21	PB39-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:35	07/15/21
L2138177-22	PB39-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:40	07/15/21
L2138177-23	PB39-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:45	07/15/21
L2138177-24	PB39-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 14:00	07/15/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-25	FB-210715-1	WATER	PHILADELPHIA, PA	07/15/21 12:00	07/15/21
L2138177-26	FB-210715-2	WATER	PHILADELPHIA, PA	07/15/21 14:30	07/15/21
L2138177-27	TB-210715	WATER	PHILADELPHIA, PA	07/15/21 00:00	07/15/21
L2138177-28	DUP-13	SOIL	PHILADELPHIA, PA	07/15/21 00:00	07/15/21



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

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: L2138177
Report Date: 08/10/21

Case Narrative (continued)

Report Submission

August 10, 2021: This final report includes the results of all requested analyses.

July 22, 2021: 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.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2138177-27: Headspace was noted in the Trip Blank containers submitted for Volatile Organics. A sample container submitted for Microextractables was utilized for the Volatile Organics analysis.

Volatile Organics

L2138177-07: 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 surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (386%) on the Low Level analysis; however, re-analysis was not performed due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2138177-08: 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.

L2138177-09, -16, -18, -19, and -20: 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.

Surrogate recoveries for the following samples are outside the acceptance criteria; however, the samples were

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Case Narrative (continued)

not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

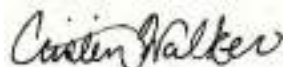
L2138177-09: 4-bromofluorobenzene (139%)
L2138177-15: 4-bromofluorobenzene (135%)
L2138177-16: 4-bromofluorobenzene (156%)
L2138177-18: toluene-d8 (144%) and 4-bromofluorobenzene (544%)
L2138177-19: 4-bromofluorobenzene (140%)
L2138177-20: 4-bromofluorobenzene (195%)
L2138177-28: 4-bromofluorobenzene (140%)

L2138177-10: The internal standard (IS) response for fluorobenzene (48%) and the surrogate recovery for 4-bromofluorobenzene (725%) 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.

L2138177-24: The internal standard (IS) response for fluorobenzene (215%) and the surrogate recoveries for dibromofluoromethane (46%) and 4-bromofluorobenzene (152%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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.

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: 08/10/21

ORGANICS



VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
 Client ID: PB121-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 13:30
 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	0.00049		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.0013		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00042	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
 Client ID: PB121-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 13:55
 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	0.0026	0.00026	1
Benzene	0.00078		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	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-03
 Client ID: PB121-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 14:20
 Analyst: AJK
 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	6.3		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	ND		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.011	J	mg/kg	0.058	0.0082	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.058	0.017	1
Xylenes, Total	ND		mg/kg	0.058	0.017	1
Isopropylbenzene	ND		mg/kg	0.058	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	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
 Client ID: PB121-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 06:36
 Analyst: MV
 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	0.11	0.011	1
Benzene	7.4		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	1.4		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.043	J	mg/kg	0.055	0.0078	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.026	J	mg/kg	0.055	0.016	1
Xylenes, Total	0.13	J	mg/kg	0.055	0.016	1
Isopropylbenzene	ND		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.021	J	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
 Client ID: PB121-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:10
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 15:10
 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	0.0019	0.00019	1
Benzene	0.026		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00094	0.00027	1
Xylenes, Total	ND		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.012		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	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06 D2
 Client ID: PB121-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 08:41
 Analyst: JC
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	320		mg/kg	1.4	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06 D
 Client ID: PB121-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 15:35
 Analyst: AJK
 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	0.44	0.045	4
Benzene	260	E	mg/kg	0.11	0.037	4
1,2-Dichloroethane	ND		mg/kg	0.22	0.057	4
Toluene	0.77		mg/kg	0.22	0.12	4
1,2-Dibromoethane	ND		mg/kg	0.11	0.065	4
Ethylbenzene	3.2		mg/kg	0.22	0.031	4
p/m-Xylene	4.5		mg/kg	0.44	0.12	4
o-Xylene	1.2		mg/kg	0.22	0.065	4
Xylenes, Total	5.7		mg/kg	0.22	0.065	4
Isopropylbenzene	1.0		mg/kg	0.22	0.024	4
1,3,5-Trimethylbenzene	0.79		mg/kg	0.44	0.043	4
1,2,4-Trimethylbenzene	1.3		mg/kg	0.44	0.074	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
 Client ID: PB121-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 07:01
 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	0.11	0.011	1
Benzene	0.021	J	mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	ND		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	ND		mg/kg	0.057	0.0081	1
p/m-Xylene	ND		mg/kg	0.11	0.032	1
o-Xylene	ND		mg/kg	0.057	0.017	1
Xylenes, Total	ND		mg/kg	0.057	0.017	1
Isopropylbenzene	0.46		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
 Client ID: PB121-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 12:01
 Analyst: KJD
 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	0.0017	0.00017	1
Benzene	0.013		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	0.00048	J	mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	0.00026	J	mg/kg	0.00086	0.00025	1
Xylenes, Total	0.00026	J	mg/kg	0.00086	0.00025	1
Isopropylbenzene	0.11		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	87		70-130
Toluene-d8	132	Q	70-130
4-Bromofluorobenzene	386	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
 Client ID: PB121-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 16:25
 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	0.0043		mg/kg	0.0018	0.00019	1
Benzene	1.5	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.22		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.0031		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.0045		mg/kg	0.0018	0.00052	1
o-Xylene	0.0028		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.0073		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00067	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00074	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
 Client ID: PB121-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 09:06
 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	3.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.28		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.061	0.018	1
Xylenes, Total	ND		mg/kg	0.061	0.018	1
Isopropylbenzene	ND		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		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	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
 Client ID: PB121-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 07:26
 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	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	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	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.18		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
 Client ID: PB121-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 17:16
 Analyst: AJK
 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	0.010	J	mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.014	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.052	0.0074	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	ND		mg/kg	0.052	0.015	1
Isopropylbenzene	0.013	J	mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
 Client ID: PB121-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 09:31
 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	0.0018	0.00018	1
Benzene	0.00020	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.057		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	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	86		70-130
4-Bromofluorobenzene	725	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
 Client ID: PB39-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 17:41
 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	0.0028	0.00028	1
Benzene	0.0012		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0028	0.00077	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.00022	J	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
Naphthalene	ND		mg/kg	0.0055	0.00090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-12
 Client ID: PB39-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:05
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 18:06
 Analyst: AJK
 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	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.00039	J	mg/kg	0.00099	0.00014	1
p/m-Xylene	0.0025		mg/kg	0.0020	0.00055	1
o-Xylene	0.00069	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.0032	J	mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.011		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	0.00038	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0030		mg/kg	0.0020	0.00033	1
Naphthalene	0.0067		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-13
 Client ID: PB39-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:20
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 18:31
 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	0.0033	0.00033	1
Benzene	ND		mg/kg	0.00082	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00089	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00092	1
o-Xylene	ND		mg/kg	0.0016	0.00048	1
Xylenes, Total	ND		mg/kg	0.0016	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00055	1
Naphthalene	ND		mg/kg	0.0066	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-14
 Client ID: PB39-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:30
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 07:51
 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	0.015	J	mg/kg	0.11	0.011	1
Benzene	0.65		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.16		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	5.3		mg/kg	0.056	0.0079	1
p/m-Xylene	19.		mg/kg	0.11	0.031	1
o-Xylene	0.38		mg/kg	0.056	0.016	1
Xylenes, Total	19.		mg/kg	0.056	0.016	1
Isopropylbenzene	0.33		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.11	0.019	1
Naphthalene	5.4		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
 Client ID: PB39-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 09:56
 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	0.0037		mg/kg	0.0034	0.00034	1
Benzene	0.015		mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0077		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00049	1
Ethylbenzene	0.0051		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.016		mg/kg	0.0034	0.00094	1
o-Xylene	0.0036		mg/kg	0.0017	0.00049	1
Xylenes, Total	0.020		mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.070		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0024	J	mg/kg	0.0034	0.00032	1
1,2,4-Trimethylbenzene	0.0041		mg/kg	0.0034	0.00056	1
Naphthalene	0.0011	J	mg/kg	0.0068	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	135	Q	70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-16
 Client ID: PB39-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 19:46
 Analyst: AJK
 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	0.20	0.020	1
Benzene	0.92		mg/kg	0.050	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.099	0.025	1
Toluene	0.37		mg/kg	0.099	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.050	0.029	1
Ethylbenzene	0.26		mg/kg	0.099	0.014	1
p/m-Xylene	1.1		mg/kg	0.20	0.056	1
o-Xylene	0.20		mg/kg	0.099	0.029	1
Xylenes, Total	1.3		mg/kg	0.099	0.029	1
Isopropylbenzene	0.72		mg/kg	0.099	0.011	1
1,3,5-Trimethylbenzene	0.10	J	mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	0.34		mg/kg	0.20	0.033	1
Naphthalene	0.26	J	mg/kg	0.40	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	156	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-17
 Client ID: PB39-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 20:11
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0047		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
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-18
 Client ID: PB85-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:05
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 12:51
 Analyst: KJD
 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	0.11	0.011	1
Benzene	ND		mg/kg	0.027	0.0090	1
Toluene	0.083		mg/kg	0.054	0.029	1
Ethylbenzene	0.026	J	mg/kg	0.054	0.0076	1
Isopropylbenzene	8.6		mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.018	1
Naphthalene	0.12	J	mg/kg	0.22	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	144	Q	70-130
4-Bromofluorobenzene	544	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-19
 Client ID: PB39-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:15
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 13:16
 Analyst: KJD
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.12	0.012	1
Benzene	0.72		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.20		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	1.2		mg/kg	0.060	0.0085	1
p/m-Xylene	0.43		mg/kg	0.12	0.034	1
o-Xylene	0.12		mg/kg	0.060	0.018	1
Xylenes, Total	0.55		mg/kg	0.060	0.018	1
Isopropylbenzene	16.		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	1.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.1		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20
 Client ID: PB39-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:25
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 13:41
 Analyst: KJD
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	1.4		mg/kg	0.061	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	0.68		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	1
Ethylbenzene	0.33		mg/kg	0.12	0.017	1
p/m-Xylene	1.2		mg/kg	0.24	0.068	1
o-Xylene	0.22		mg/kg	0.12	0.035	1
Xylenes, Total	1.4		mg/kg	0.12	0.035	1
Isopropylbenzene	7.6		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.14	J	mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.50		mg/kg	0.24	0.040	1
Naphthalene	0.97		mg/kg	0.49	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	195	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
 Client ID: PB39-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 10:21
 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	0.0019	J	mg/kg	0.0025	0.00026	1
Benzene	0.00028	J	mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00064	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
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-22
 Client ID: PB39-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:40
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 10:46
 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	0.00081	J	mg/kg	0.0029	0.00029	1
Benzene	0.0020		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.0010	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0010	J	mg/kg	0.0029	0.00082	1
o-Xylene	0.0010	J	mg/kg	0.0015	0.00042	1
Xylenes, Total	0.0020	J	mg/kg	0.0015	0.00042	1
Isopropylbenzene	0.0011	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00049	1
Naphthalene	0.016		mg/kg	0.0058	0.00095	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23 D2
 Client ID: PB39-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 14:31
 Analyst: KJD
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	350		mg/kg	3.1	1.7	50
p/m-Xylene	670		mg/kg	6.3	1.8	50
Xylenes, Total	920		mg/kg	1.6	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23 D
 Client ID: PB39-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 15:41
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	3.1	0.31	25
Benzene	73.		mg/kg	0.78	0.26	25
1,2-Dichloroethane	ND		mg/kg	1.6	0.40	25
Toluene	470	E	mg/kg	1.6	0.85	25
1,2-Dibromoethane	ND		mg/kg	0.78	0.46	25
Ethylbenzene	180		mg/kg	1.6	0.22	25
p/m-Xylene	1000	E	mg/kg	3.1	0.88	25
o-Xylene	250		mg/kg	1.6	0.46	25
Isopropylbenzene	11.		mg/kg	1.6	0.17	25
1,3,5-Trimethylbenzene	98.		mg/kg	3.1	0.30	25
1,2,4-Trimethylbenzene	390		mg/kg	3.1	0.52	25
Naphthalene	40.		mg/kg	6.3	1.0	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
 Client ID: PB39-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/20/21 16:07
 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	0.0035		mg/kg	0.0023	0.00023	1
Benzene	0.069		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00030	1
Toluene	0.034		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00034	1
Ethylbenzene	0.026		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.067		mg/kg	0.0023	0.00064	1
o-Xylene	0.012		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.079		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.55	E	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0073		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.020		mg/kg	0.0023	0.00038	1
Naphthalene	0.041		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	46	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
 Client ID: PB39-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 14:06
 Analyst: KJD
 Percent Solids: 80%

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	0.16		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.046	J	mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.018	1
Ethylbenzene	0.12		mg/kg	0.063	0.0089	1
p/m-Xylene	0.14		mg/kg	0.13	0.035	1
o-Xylene	0.030	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.17	J	mg/kg	0.063	0.018	1
Isopropylbenzene	0.60		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.087	J	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
 Client ID: FB-210715-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/19/21 13:39
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/19/21 09:50

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: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
 Client ID: FB-210715-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/18/21 18:13
 Analyst: AJK

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	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
 Client ID: FB-210715-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/19/21 13:45
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/19/21 09:50

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: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
 Client ID: FB-210715-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/18/21 18:40
 Analyst: AJK

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	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-27
 Client ID: TB-210715
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/19/21 13:52
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/19/21 09:50

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: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-27
 Client ID: TB-210715
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/18/21 19:06
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
 Client ID: DUP-13
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 11:11
 Analyst: JC
 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	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00084	0.00022	1
Toluene	ND		mg/kg	0.00084	0.00046	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00025	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	0.0056		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	85		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/19/21 11:35
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-27 Batch: WG1525272-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/18/21 14:49
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-27 Batch: WG1525570-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-10					
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	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06,10,16 Batch: WG1525959-5					
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	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-5					
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	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1526039-5					
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	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 24 Batch: WG1526040-5					
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	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10,15,21-22,28 Batch: WG1526316-5					
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	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138177

Report Date: 08/10/21

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: WG1525272-2									
1,2-Dibromoethane	105		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

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: WG1525570-3 WG1525570-4								
Methyl tert butyl ether	92		93		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		99		70-130	1		20
1,2-Dibromoethane	87		86		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	95		90		64-130	5		20
1,2,4-Trimethylbenzene	96		94		70-130	2		20
Naphthalene	91		91		70-130	0		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	99		97		70-130
Dibromofluoromethane	107		107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06,10,16 Batch: WG1525959-3 WG1525959-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	86		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-8 WG1525959-9								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		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: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-3 WG1525962-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1526039-3 WG1526039-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 24 Batch: WG1526040-3 WG1526040-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10,15,21-22,28 Batch: WG1526316-3 WG1526316-4								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		99		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
 Client ID: PB121-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 15:51
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	120	32.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	150	23.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	120	23.	1
Pyrene	ND		ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	54		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
 Client ID: PB121-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 12:00
 Analyst: CMM
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-03
 Client ID: PB121-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 12:24
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	83	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	43	J	ug/kg	120	33.	1
Chrysene	120		ug/kg	120	21.	1
Anthracene	60	J	ug/kg	120	39.	1
Benzo(ghi)perylene	28	J	ug/kg	160	23.	1
Fluorene	90	J	ug/kg	200	19.	1
Phenanthrene	110	J	ug/kg	120	24.	1
Pyrene	120		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	51		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
 Client ID: PB121-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 12:49
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	46		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
 Client ID: PB121-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:10
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 16:15
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	41		30-120
4-Terphenyl-d14	33		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06
 Client ID: PB121-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 16:38
 Analyst: CMM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	38	J	ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	46		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
 Client ID: PB121-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:35
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 13:29
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	240		ug/kg	200	20.	1
Phenanthrene	140		ug/kg	120	24.	1
Pyrene	22	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	44		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
 Client ID: PB121-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 13:13
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	40		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
 Client ID: PB121-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 13:52
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	67	J	ug/kg	120	24.	1
Pyrene	20	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	50		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
 Client ID: PB121-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/20/21 14:16
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	50		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
 Client ID: FB-210715-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/22/21 15:57
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 07/19/21 20:55

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	90		23-120
2-Fluorobiphenyl	89		15-120
4-Terphenyl-d14	99		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
 Client ID: FB-210715-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 07/22/21 16:15
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 07/19/21 20:55

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	83		23-120
2-Fluorobiphenyl	85		15-120
4-Terphenyl-d14	95		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
 Client ID: DUP-13
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
 Date Received: 07/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 07/21/21 11:43
 Analyst: WR
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 07/20/21 13:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	24.	1
Benzo(a)anthracene	58	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	52	J	ug/kg	120	20.	1
Anthracene	48	J	ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	86	J	ug/kg	190	19.	1
Phenanthrene	240		ug/kg	120	24.	1
Pyrene	83	J	ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 07/22/21 17:29
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 07/19/21 20:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-26 Batch: WG1525554-1					
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
2-Fluorophenol	94		21-120
Phenol-d6	76		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	99		15-120
2,4,6-Tribromophenol	124	Q	10-120
4-Terphenyl-d14	108		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D
 Analytical Date: 07/20/21 11:07
 Analyst: WR

Extraction Method: EPA 3546
 Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,28 Batch: WG1525581-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		25-120
Phenol-d6	49		10-120
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	44		30-120
2,4,6-Tribromophenol	45		10-136
4-Terphenyl-d14	46		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-26 Batch: WG1525554-2 WG1525554-3								
Naphthalene	109		90		40-140	19		40
Fluorene	113		94		40-140	18		40
Phenanthrene	122		103		40-140	17		40
Anthracene	128		106		40-140	19		40
Pyrene	131	Q	109		26-127	18		40
Benzo(a)anthracene	131		111		40-140	17		40
Chrysene	125		106		40-140	16		40
Benzo(b)fluoranthene	139		111		40-140	22		40
Benzo(a)pyrene	142	Q	119		40-140	18		40
Benzo(ghi)perylene	147	Q	125		40-140	16		40

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
2-Fluorophenol	81		65		21-120
Phenol-d6	71		57		10-120
Nitrobenzene-d5	127	Q	104		23-120
2-Fluorobiphenyl	123	Q	105		15-120
2,4,6-Tribromophenol	118		98		10-120
4-Terphenyl-d14	144		120		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,28 Batch: WG1525581-2 WG1525581-3								
Naphthalene	47		49		40-140	4		50
Benzo(a)anthracene	46		48		40-140	4		50
Benzo(a)pyrene	52		54		40-140	4		50
Benzo(b)fluoranthene	51		53		40-140	4		50
Chrysene	46		50		40-140	8		50
Anthracene	48		51		40-140	6		50
Benzo(ghi)perylene	48		50		40-140	4		50
Fluorene	48		50		40-140	4		50
Phenanthrene	45		48		40-140	6		50
Pyrene	49		52		35-142	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		52		25-120
Phenol-d6	53		57		10-120
Nitrobenzene-d5	54		57		23-120
2-Fluorobiphenyl	49		51		30-120
2,4,6-Tribromophenol	51		53		10-136
4-Terphenyl-d14	50		52		18-120

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Client ID: PB121-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
Date Received: 07/15/21
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	84.4		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Client ID: PB121-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:45
Date Received: 07/15/21
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	92.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-03
Client ID: PB121-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:55
Date Received: 07/15/21
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	82.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
Client ID: PB121-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
Date Received: 07/15/21
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	86.5		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
Client ID: PB121-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:10
Date Received: 07/15/21
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	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
Date Received: 07/15/21
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	85.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
Client ID: PB121-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:35
Date Received: 07/15/21
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	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
Date Received: 07/15/21
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	82.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
Client ID: PB121-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
Date Received: 07/15/21
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	82.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
Date Received: 07/15/21
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	86.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
Client ID: PB39-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:55
Date Received: 07/15/21
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	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-12
Client ID: PB39-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:05
Date Received: 07/15/21
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	87.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-13
 Client ID: PB39-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:20
 Date Received: 07/15/21
 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	84.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-14
Client ID: PB39-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:30
Date Received: 07/15/21
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	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
Client ID: PB39-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:35
Date Received: 07/15/21
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	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-16
Client ID: PB39-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:45
Date Received: 07/15/21
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	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-17
Client ID: PB39-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:55
Date Received: 07/15/21
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	84.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-18
Client ID: PB85-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:05
Date Received: 07/15/21
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	83.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-19
Client ID: PB39-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:15
Date Received: 07/15/21
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	86.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20
Client ID: PB39-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:25
Date Received: 07/15/21
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	81.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
Client ID: PB39-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:35
Date Received: 07/15/21
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	86.3		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-22
Client ID: PB39-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:40
Date Received: 07/15/21
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	84.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23
Client ID: PB39-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:45
Date Received: 07/15/21
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	81.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
Client ID: PB39-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:00
Date Received: 07/15/21
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	79.5		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
Client ID: DUP-13
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
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	84.7		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI



Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1524628-1 QC Sample: L2138177-01 Client ID: PB121-03-SS01						
Solids, Total	84.4	84.3	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24,28 QC Batch ID: WG1524629-1 QC Sample: L2138164-01 Client ID: DUP Sample						
Solids, Total	85.6	86.1	%	1		20



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**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(*)
L2138177-01A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-01B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-01E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-01F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-02A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-02B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-02E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-02F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-03A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-03B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-03E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-03F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-04A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-04B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-04C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-04E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-04F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-05A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-05B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-05E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-05F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-06A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-06B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-06E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-06F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-07A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-07B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-07E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-07F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-08A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-08B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-08E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-08F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-09A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-09B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-09E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-09F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-10A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-10B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-10E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-10F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-11A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-11B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-11E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-12A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-12B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-12E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-13A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-13B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-13E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-14A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-14B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-14C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-14D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-14E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-15A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-15B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-15E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-16A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-16B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-16E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-17A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-17B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-17E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-18A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-18B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-19A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-19B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-19E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-20A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-20B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-20E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-21A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-21B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-21E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-22A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-22B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-22E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-23A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-23B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-23E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-24A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-24B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-24E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-25A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138177**Project Number:** 200.00135.005.03**Report Date:** 08/10/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-25E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-25F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVII(7)
L2138177-25G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVII(7)
L2138177-25H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-26A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVII(7)
L2138177-26G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVII(7)
L2138177-26H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-27A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-27D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-28A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-28B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-28E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-28F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

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: L2138177
Report Date: 08/10/21

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: L2138177
Report Date: 08/10/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2138177

Project Number: 200.00135.005.03

Report Date: 08/10/21

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-Terpeneol

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-Terpeneol; 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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Westborough, MA **Mansfield, MA**
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

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: 7/11/12

ALPHA Job #: L2138177

Report Information **Data Deliverables** **Billing Information**

FAX EMAIL Same as Client info PO #: 3894

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 jjeray@hilcoglobal.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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 <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) Sample Specific Comments	TOTAL # BOTTLES
		Date	Time															
38177 -01	PB121-03-5501	7/15	0835	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"/>		6
-02	PB121-04-5501		0845			<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"/>		
-03	PB121-09-5501		0855			<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"/>		
-04	PB121-09-5501		0905			<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"/>		
-05	PB121-10-5501		0910			<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"/>		
-06	PB121-12-5501		0920			<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"/>		
-07	PB121-13-5501		0935			<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"/>		
-08	PB121-14-5501		0945			<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"/>		
-09	PB121-15-5501		0955			<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"/>		
-10	PB121-16-5501		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"/>		

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time:	Received By:	Date/Time:
<i>[Signature]</i>	7/15 1500	<i>[Signature]</i>	7/15/12 1500

FORM NO: 31-21/14/2 (rev. 3-2011-12)

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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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

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

Fax: Standard Rush (ONLY IF PRE-APPROVED)
 Email: William.Schmidt@ransomenv.com
 These samples have been Previously analyzed by Alpha 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 (see attached for compounds)
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 7/16/21 ALPHA Job #: L2138177

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client info PO #: 3894
 ADEx Add'l Deliverables

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 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) Sample Specific Comments	TOTAL # BOTTLES
<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 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 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 type="checkbox"/>		

Container Type G G G - - - - - - -
 Preservative F A A - - - - - - -

Relinquished By: *[Signature]* Date/Time: 7/15 5:00
 Received By: *[Signature]* Date/Time: 7/15/21 1:50
 246 030 7/16/21 07:15

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's Payment Terms.

FORM NO: 01-01(1-14)
 (rev. 5-2016-02)

CHAIN OF CUSTODY PAGE 3 OF 3



Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-868-9193 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC
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 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 7/16/21 ALPHA Job #: 22138177

Report Information Data Deliverables Billing Information
 FAX EMAIL Same as Client Info PO #: 3894
 ADEx Add'l Deliverables

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)	SAMPLE HANDLING	TOTAL # BOTTLES
<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"/>	0
<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"/>	6
<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"/>	6
<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
<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 type="checkbox"/>	<input checked="" 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"/>	

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
38177-21	PB 39-10-5501	7/15	1335	S	TS
-22	PB 39-11-5501	7/15	1340	S	TS
-23	PB 39-12-5501	7/15	1345	S	TS
-24	PB 39-13-5501	7/15	1400	S	TS
-25	FB-210715-1	7/15	1200	W	TS
-26	FB-210715-2	7/15	1430	W	TS
-27	TB-210715	7/15		W	TS
-28	DUP-13	7/15		S	TS

Container Type	G	G	G	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: 7/15 1500
 Received By: *[Signature]* Date/Time: 7/15/21 1500

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FORM NO: 01-20(11-1)
 Rev. 2-2014-02

PADEP Short List Analytical List:

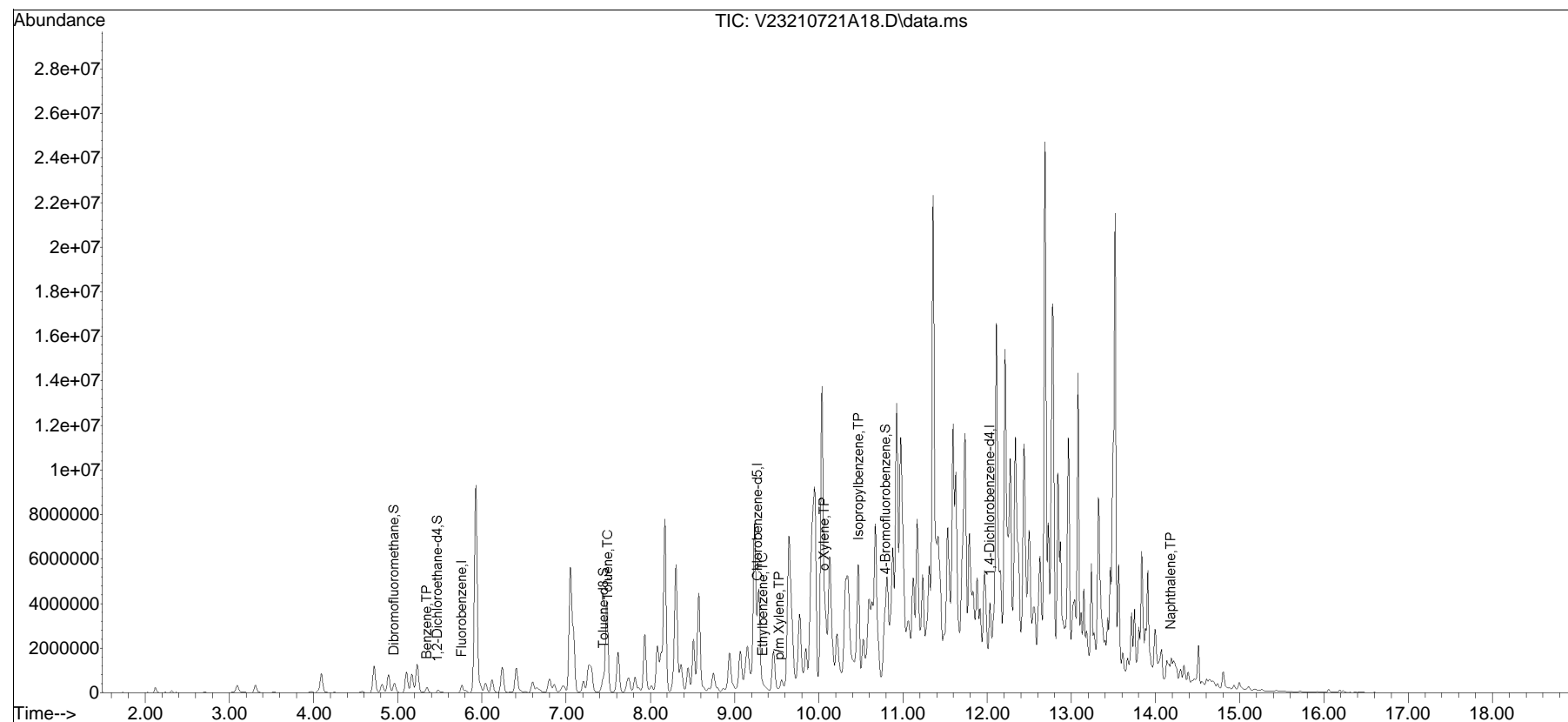
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl 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-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
 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\VOA123\2021\210721A\
Data File : V23210721A18.D
Acq On : 21 Jul 2021 12:01 pm
Operator : VOA123:KJD
Sample : L2138177-07,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 21 18:28:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

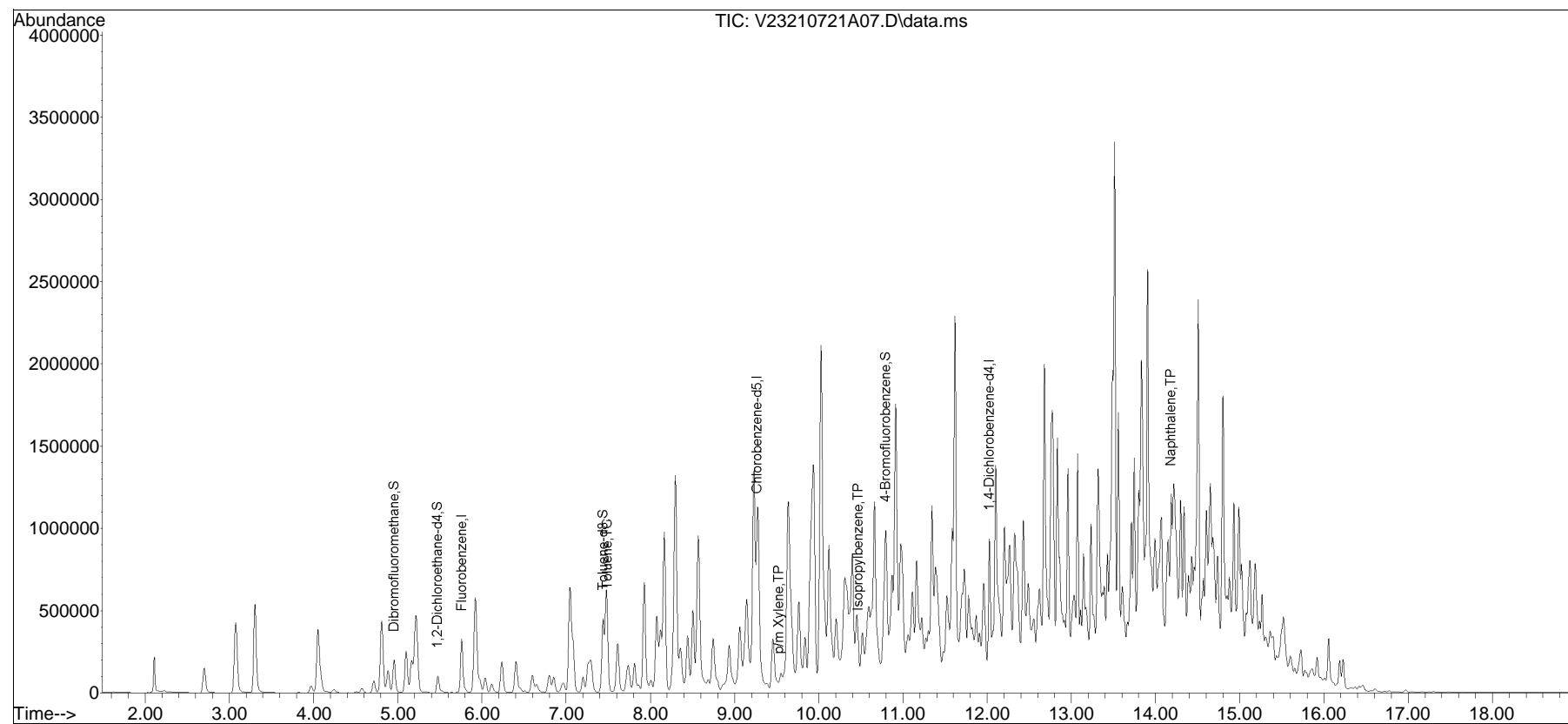


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A07.D
Acq On : 21 Jul 2021 07:26 am
Operator : VOA123:MV
Sample : L2138177-09,31H,6.72,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 21 08:15:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

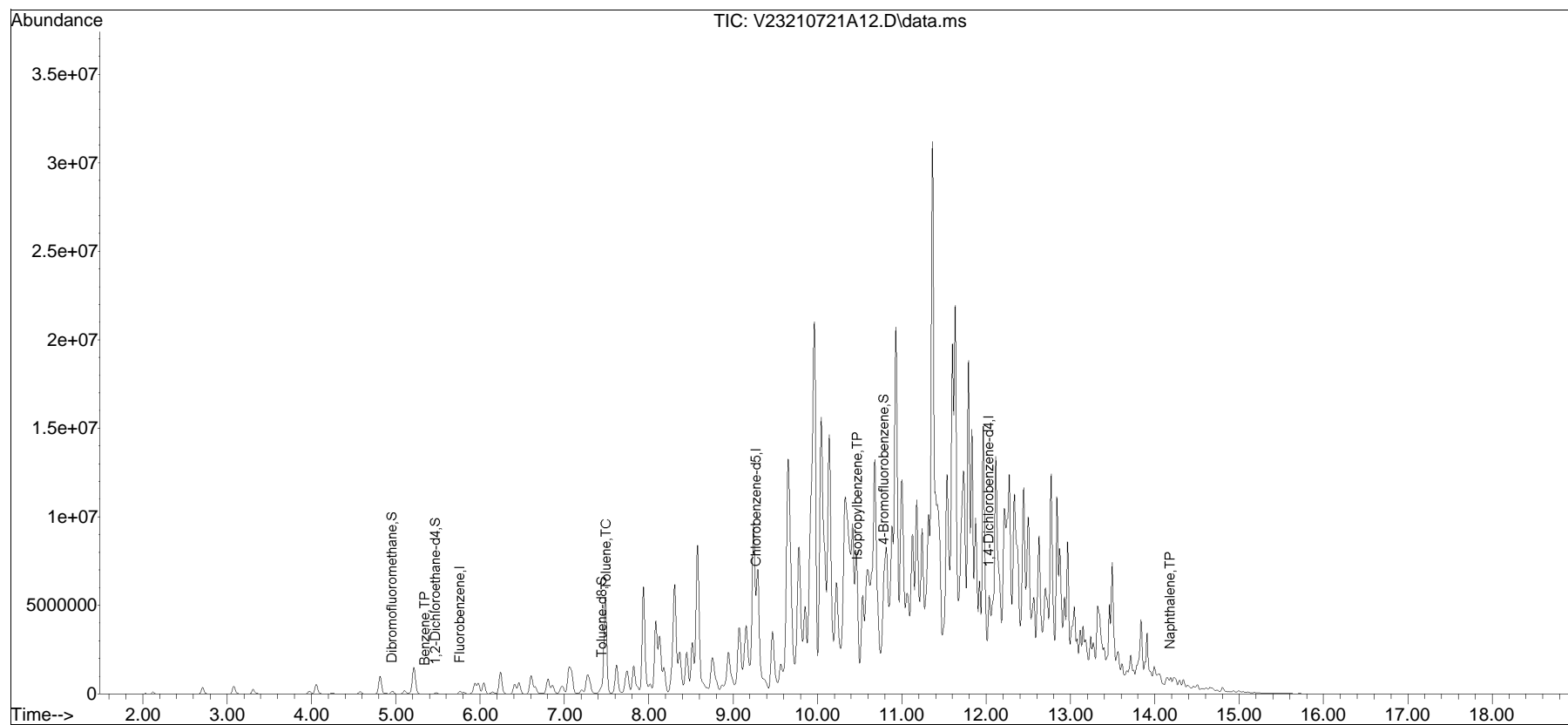


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A12.D
Acq On : 21 Jul 2021 09:31 am
Operator : VOA123:JC
Sample : L2138177-10,31,6.31,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 21 11:31:26 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

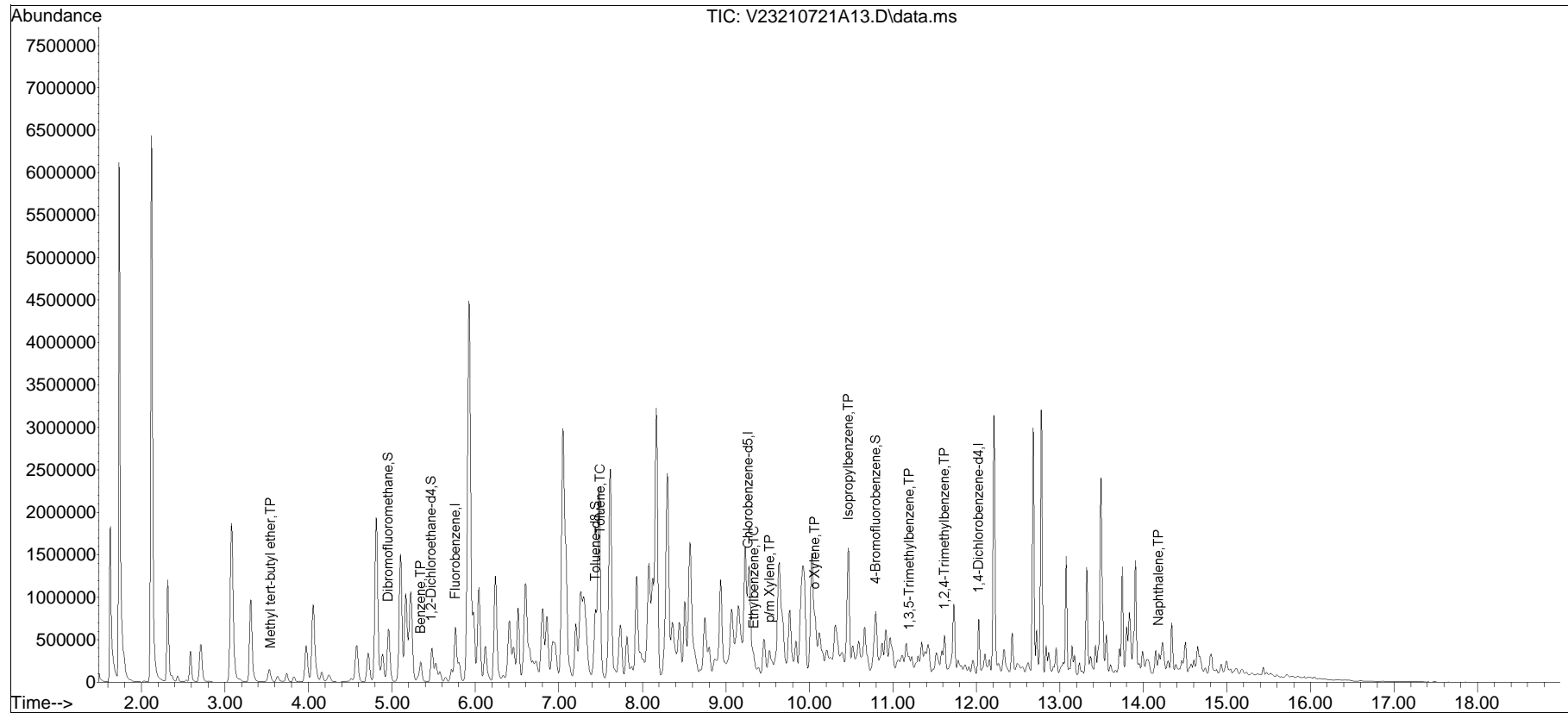


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
 Data File : V23210721A13.D
 Acq On : 21 Jul 2021 09:56 am
 Operator : VOA123:JC
 Sample : L2138177-15,31,3.63,5,,B
 Misc : WG1526316,ICAL18108
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 21 11:35:05 2021
 Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 29 14:55:56 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

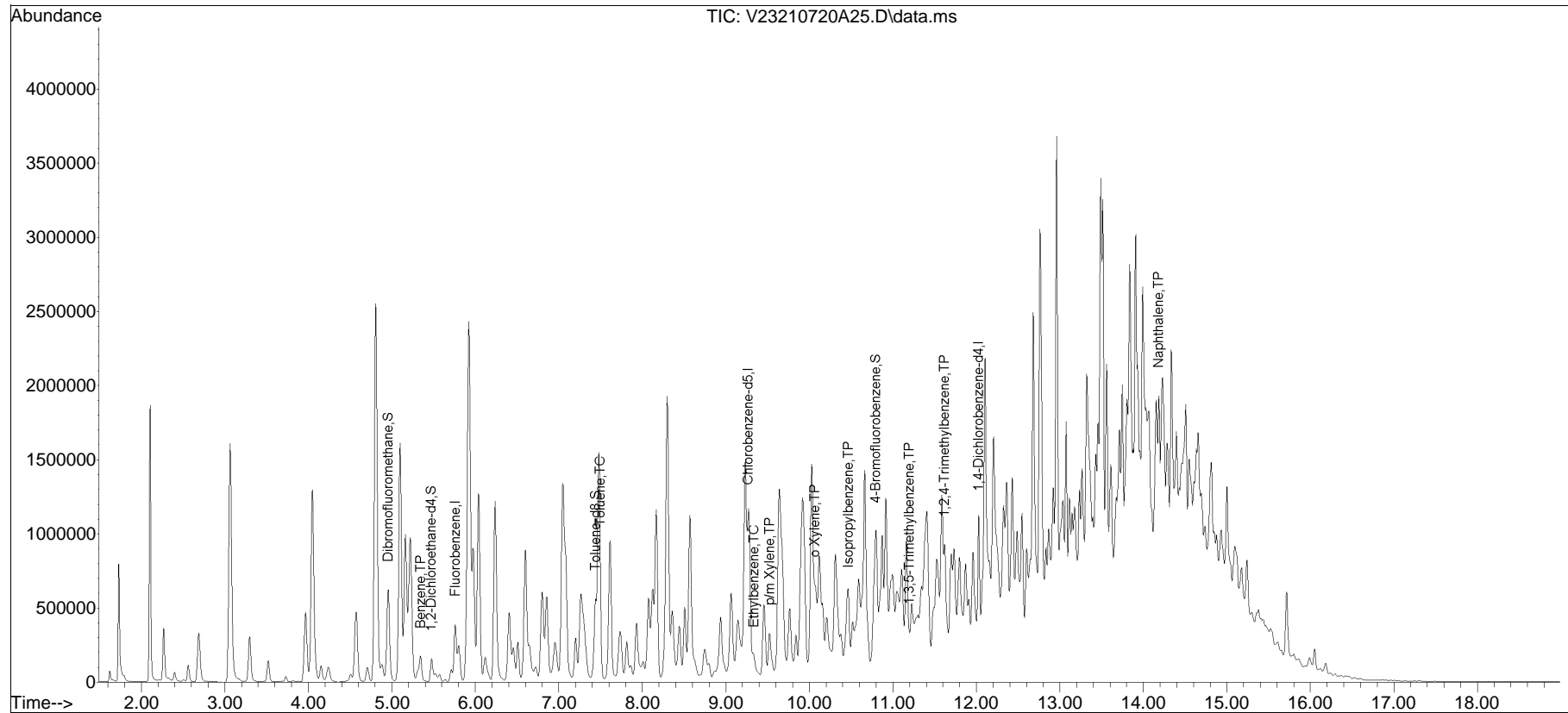


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210720A\
Data File : V23210720A25.D
Acq On : 20 Jul 2021 07:46 pm
Operator : VOA123:AJK
Sample : L2138177-16,31H,3.41,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 20 20:35:55 2021
Quant Method : I:\VOLATILES\VOA123\2021\210720A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V23210720A01.D•

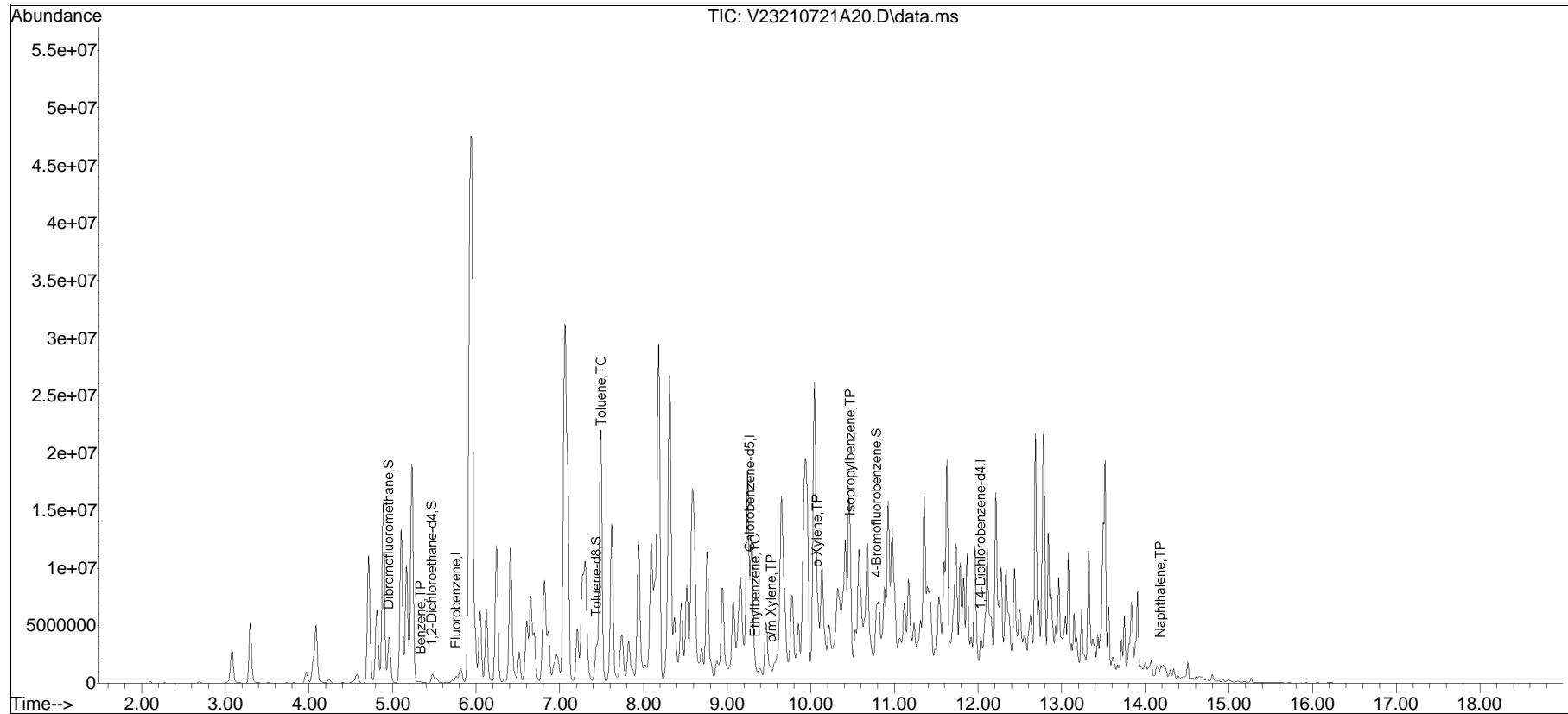


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
 Data File : V23210721A20.D
 Acq On : 21 Jul 2021 12:51 pm
 Operator : VOA123:KJD
 Sample : L2138177-18,31H,6.68,5,0.100,,A
 Misc : WG1525959,ICAL18108
 ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 21 18:29:36 2021
 Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 29 14:55:56 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

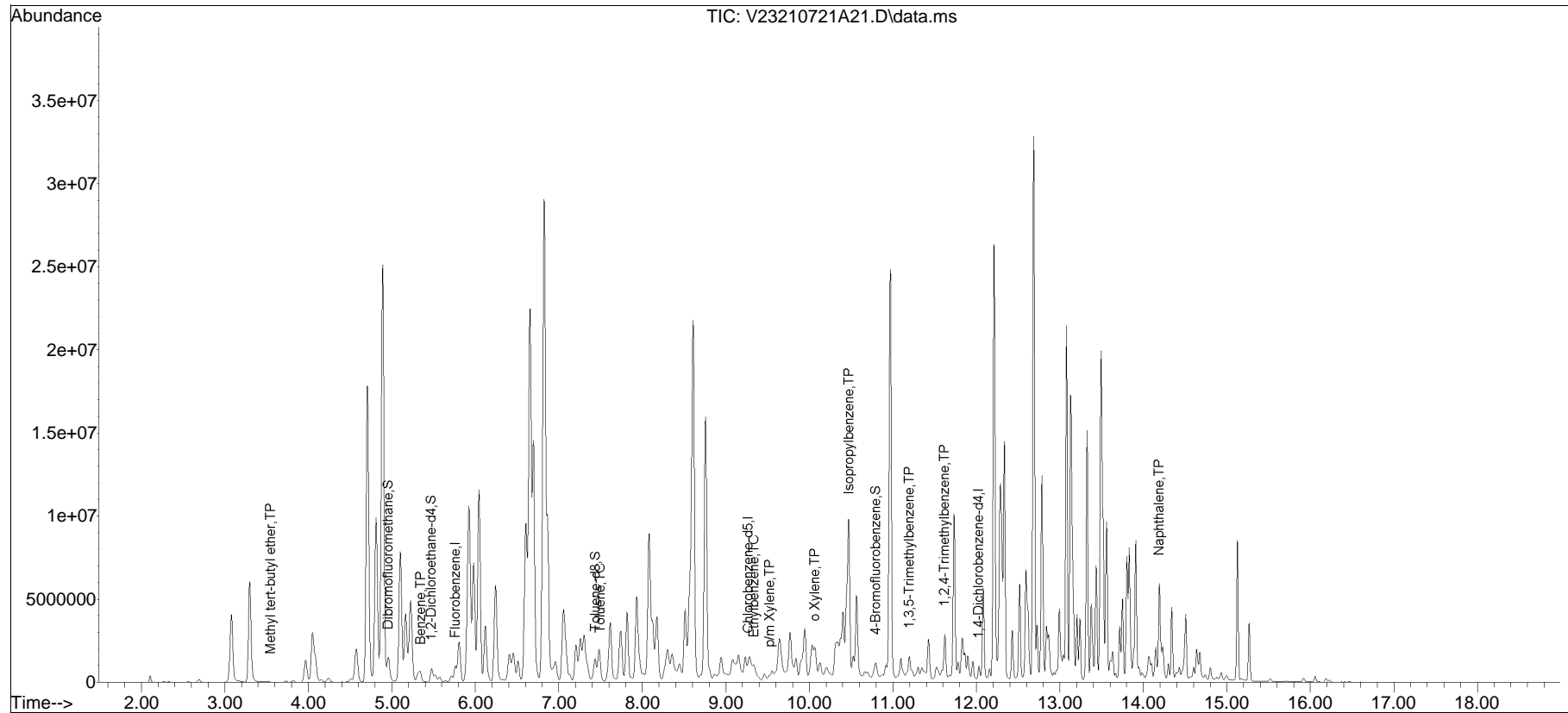


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
 Data File : V23210721A21.D
 Acq On : 21 Jul 2021 01:16 pm
 Operator : VOA123:KJD
 Sample : L2138177-19,31H,5.56,5,0.100,,A
 Misc : WG1525959,ICAL18108
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 21 18:32:04 2021
 Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 29 14:55:56 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

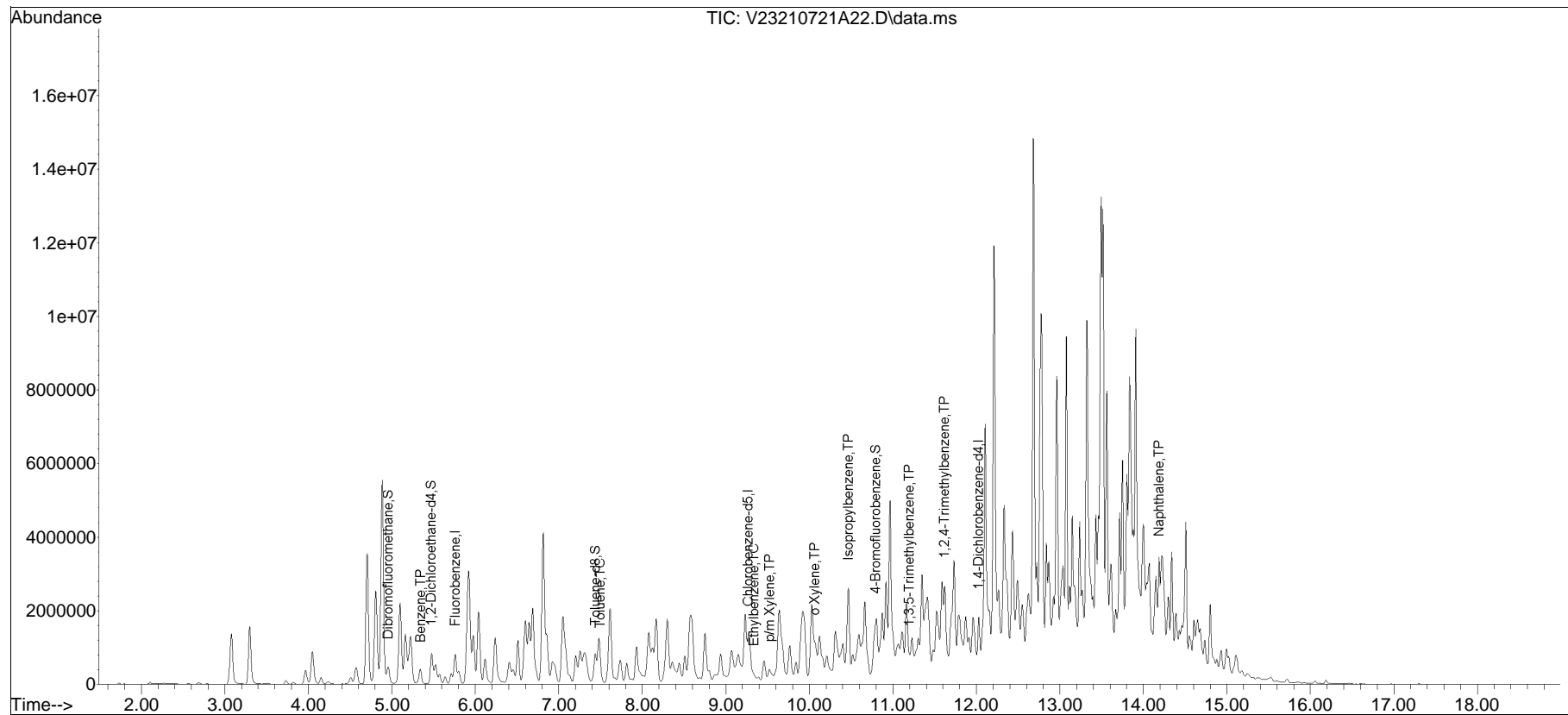


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A22.D
Acq On : 21 Jul 2021 01:41 pm
Operator : VOA123:KJD
Sample : L2138177-20,31H,2.80,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 21 18:33:39 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

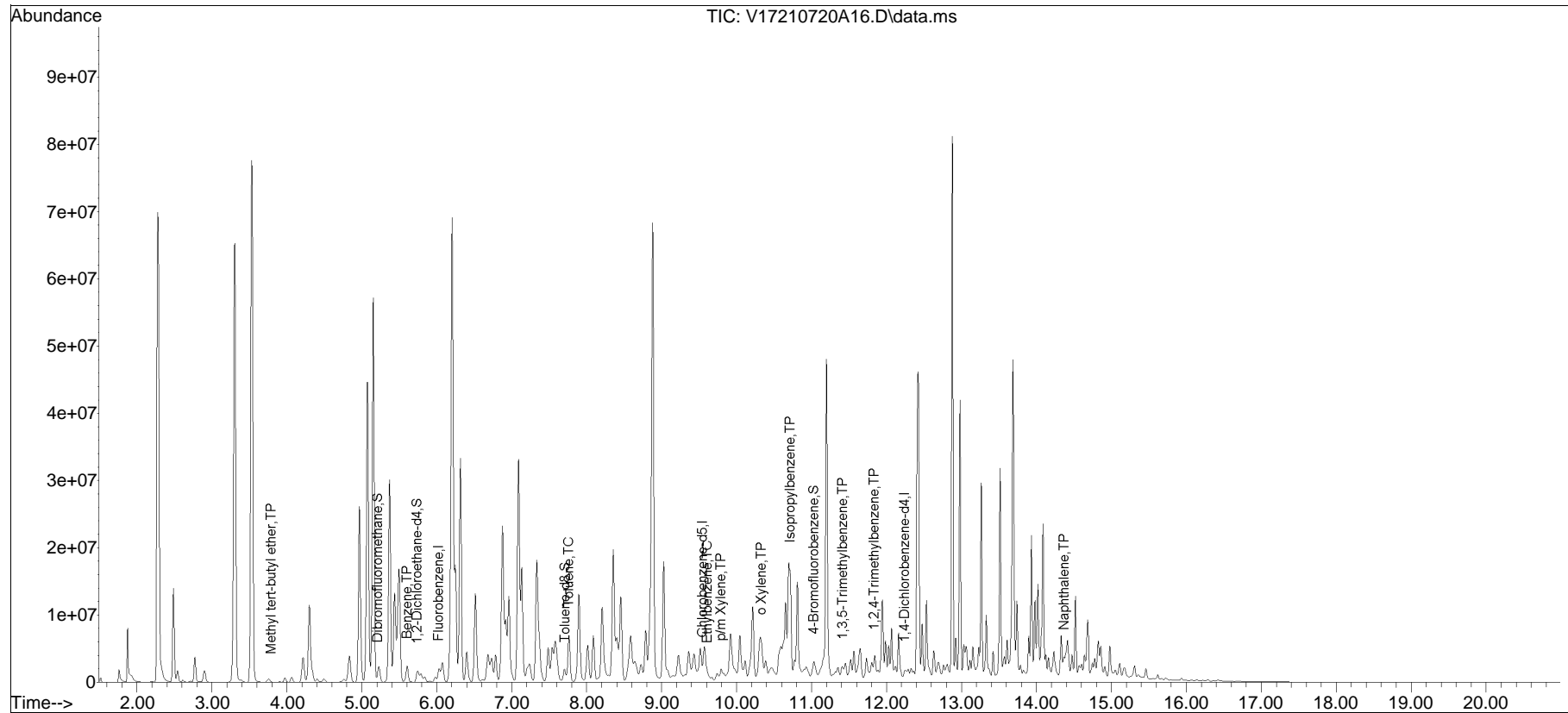


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210720A\
 Data File : V17210720A16.D
 Acq On : 20 Jul 2021 04:07 pm
 Operator : VOA117:AJK
 Sample : L2138177-24,31,5.47,5,,B
 Misc : WG1526040,ICAL18099
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 20 17:58:09 2021
 Quant Method : I:\VOLATILES\VOA117\2021\210720A\V117_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Mon Jun 28 11:54:28 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V17210720A01.D•

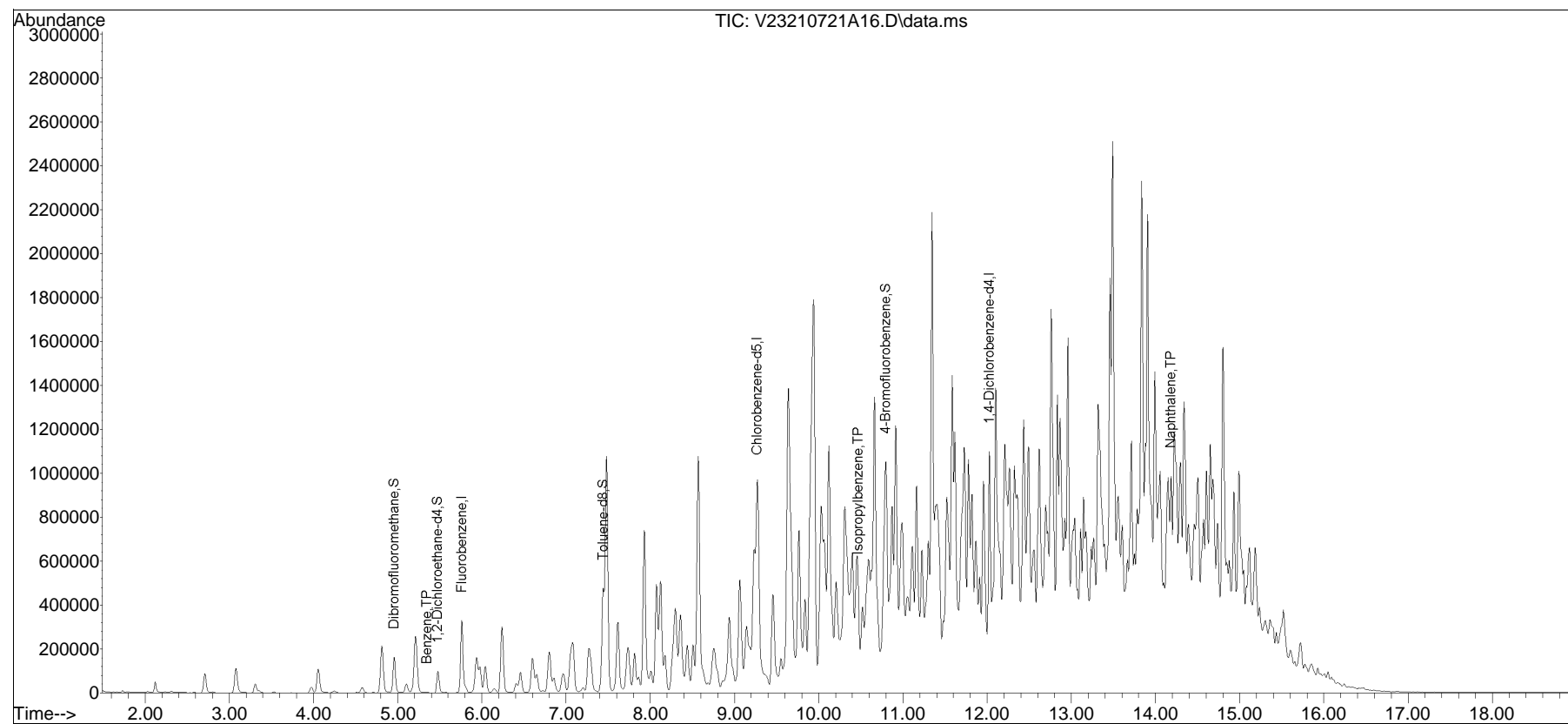


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A16.D
Acq On : 21 Jul 2021 11:11 am
Operator : VOA123:JC
Sample : L2138177-28,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 21 12:15:12 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•





Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138177

SGS Job Number: JD28643

Sampling Date: 07/15/21

Report to:

Alpha Analytical Laboratories, Inc.
 Eight Walkup Drive
 Westborough, MA 01581
 nyakes@alphalab.com; subreports@alphalab.com

ATTN: Nadine Yakes

Total number of pages in report: 72



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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 Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

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SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28643

Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JD28643-1	07/15/21	08:35	07/20/21	SO	Soil	PB121-03-SS01
JD28643-2	07/15/21	08:45	07/20/21	SO	Soil	PB121-04-SS01
JD28643-3	07/15/21	08:55	07/20/21	SO	Soil	PB121-08-SS01
JD28643-4	07/15/21	09:05	07/20/21	SO	Soil	PB121-09-SS01
JD28643-5	07/15/21	09:10	07/20/21	SO	Soil	PB121-10-SS01
JD28643-6	07/15/21	09:20	07/20/21	SO	Soil	PB121-12-SS01
JD28643-7	07/15/21	09:35	07/20/21	SO	Soil	PB121-13-SS01
JD28643-8	07/15/21	09:45	07/20/21	SO	Soil	PB121-14-SS01
JD28643-9	07/15/21	09:55	07/20/21	SO	Soil	PB121-15-SS01
JD28643-10	07/15/21	10:10	07/20/21	SO	Soil	PB121-16-SS01
JD28643-11	07/15/21	10:55	07/20/21	SO	Soil	PB39-01-SS01
JD28643-12	07/15/21	11:05	07/20/21	SO	Soil	PB39-02-SS01
JD28643-13	07/15/21	11:20	07/20/21	SO	Soil	PB39-03-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary

(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28643Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JD28643-14	07/15/21	11:30	07/20/21	SO	Soil	PB39-04-SS01
JD28643-15	07/15/21	11:35	07/20/21	SO	Soil	PB39-05-SS01
JD28643-16	07/15/21	11:45	07/20/21	SO	Soil	PB39-06-SS01
JD28643-17	07/15/21	11:55	07/20/21	SO	Soil	PB39-07-SS01
JD28643-18	07/15/21	13:15	07/20/21	SO	Soil	PB39-08-SS01
JD28643-19	07/15/21	13:25	07/20/21	SO	Soil	PB39-09-SS01
JD28643-20	07/15/21	13:35	07/20/21	SO	Soil	PB39-10-SS01
JD28643-21	07/15/21	13:40	07/20/21	SO	Soil	PB39-11-SS01
JD28643-22	07/15/21	13:45	07/20/21	SO	Soil	PB39-12-SS01
JD28643-23	07/15/21	14:00	07/20/21	SO	Soil	PB39-13-SS01
JD28643-24	07/15/21	12:00	07/20/21	AQ	Field Blank Soil	FB-210715-1
JD28643-25	07/15/21	14:30	07/20/21	AQ	Field Blank Soil	FB-210715-2
JD28643-26	07/15/21	00:00	07/20/21	SO	Soil	DUP-13

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Alpha Analytical Laboratories, Inc.

Job No JD28643

Site: Alpha Analytical, PA

Report Date 7/28/2021 12:48:22 P

On 07/20/2021, 24 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28643 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix: AQ	Batch ID: MP27687
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- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix: SO	Batch ID: MP27576
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- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

Matrix: SO	Batch ID: MP27578
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- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28643-11SDL, JD28643-11MSD were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Duplicate Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- RPD(s) for MSD for Lead are outside control limits for sample MP27578-S2. High rpd due to possible sample nonhomogeneity.
- JD28643-1 for Lead: Elevated detection limit due to dilution required for high interfering element.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Wednesday, July 28, 2021

Page 1 of 1

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-1	PB121-03-SS01					
Lead ^a		125	12		mg/kg	SW846 6010D
JD28643-2	PB121-04-SS01					
Lead		12.5	2.1		mg/kg	SW846 6010D
JD28643-3	PB121-08-SS01					
Lead		8.3	2.4		mg/kg	SW846 6010D
JD28643-4	PB121-09-SS01					
Lead		10.8	1.4		mg/kg	SW846 6010D
JD28643-5	PB121-10-SS01					
Lead		684	2.4		mg/kg	SW846 6010D
JD28643-6	PB121-12-SS01					
Lead		11.5	2.5		mg/kg	SW846 6010D
JD28643-7	PB121-13-SS01					
Lead		7.8	2.3		mg/kg	SW846 6010D
JD28643-8	PB121-14-SS01					
Lead		10.9	2.6		mg/kg	SW846 6010D
JD28643-9	PB121-15-SS01					
Lead		8.8	2.3		mg/kg	SW846 6010D
JD28643-10	PB121-16-SS01					
Lead		6.7	2.3		mg/kg	SW846 6010D
JD28643-11	PB39-01-SS01					
Lead		153	2.3		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-12	PB39-02-SS01					
Lead		26.1	2.3		mg/kg	SW846 6010D
JD28643-13	PB39-03-SS01					
Lead		19.4	2.4		mg/kg	SW846 6010D
JD28643-14	PB39-04-SS01					
Lead		137	2.6		mg/kg	SW846 6010D
JD28643-15	PB39-05-SS01					
Lead		268	1.5		mg/kg	SW846 6010D
JD28643-16	PB39-06-SS01					
Lead		72.5	2.4		mg/kg	SW846 6010D
JD28643-17	PB39-07-SS01					
Lead		59.4	1.4		mg/kg	SW846 6010D
JD28643-18	PB39-08-SS01					
Lead		28.8	2.3		mg/kg	SW846 6010D
JD28643-19	PB39-09-SS01					
Lead		130	1.5		mg/kg	SW846 6010D
JD28643-20	PB39-10-SS01					
Lead		419	2.6		mg/kg	SW846 6010D
JD28643-21	PB39-11-SS01					
Lead		32.5	2.3		mg/kg	SW846 6010D
JD28643-22	PB39-12-SS01					
Lead		31.5	2.5		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JD28643-23 **PB39-13-SS01**

Lead	84.8	1.5		mg/kg	SW846 6010D
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JD28643-24 **FB-210715-1**

No hits reported in this sample.

JD28643-25 **FB-210715-2**

No hits reported in this sample.

JD28643-26 **DUP-13**

Lead	13.3	2.4		mg/kg	SW846 6010D
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(a) Elevated detection limit due to dilution required for high interfering element.



Dayton, NJ

Section 4

4

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-03-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-1	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 84.4
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	125	12	mg/kg	5	07/22/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27578

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-04-SS01
Lab Sample ID: JD28643-2
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 92.8

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	12.5	2.1	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-08-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-3	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 82.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	8.3	2.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-09-SS01
Lab Sample ID: JD28643-4
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 86.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	10.8	1.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-10-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-5	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 83.0
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	684	2.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-12-SS01
Lab Sample ID: JD28643-6
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 85.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	11.5	2.5	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-13-SS01
Lab Sample ID: JD28643-7
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 82.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	7.8	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-14-SS01
Lab Sample ID: JD28643-8
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 82.2

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	10.9	2.6	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-15-SS01
Lab Sample ID: JD28643-9
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 82.1

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	8.8	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB121-16-SS01
Lab Sample ID: JD28643-10
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 86.6

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	6.7	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-01-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-11	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 83.7
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	153	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-02-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-12	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 87.1
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	26.1	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-03-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-13	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 84.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	19.4	2.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-04-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-14	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	137	2.6	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-05-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-15	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	268	1.5	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-06-SS01
Lab Sample ID: JD28643-16
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 82.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	72.5	2.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-07-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-17	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 84.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	59.4	1.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-08-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-18	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 83.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	28.8	2.3	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-09-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-19	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 86.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	130	1.5	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-10-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-20	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	419	2.6	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-11-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-21	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 86.3
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	32.5	2.3	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-12-SS01
Lab Sample ID: JD28643-22
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 84.0

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	31.5	2.5	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB39-13-SS01	Date Sampled: 07/15/21
Lab Sample ID: JD28643-23	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.0
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	84.8	1.5	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: FB-210715-1	Date Sampled: 07/15/21
Lab Sample ID: JD28643-24	Date Received: 07/20/21
Matrix: AQ - Field Blank Soil	Percent Solids: n/a
Project: Alpha Analytical, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	07/27/21	07/27/21 ND	SW846 6010D ¹	SW846 3010A ²

(1) Instrument QC Batch: MA50895

(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: FB-210715-2	Date Sampled: 07/15/21
Lab Sample ID: JD28643-25	Date Received: 07/20/21
Matrix: AQ - Field Blank Soil	Percent Solids: n/a
Project: Alpha Analytical, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	07/27/21	07/27/21 ND	SW846 6010D ¹	SW846 3010A ²

(1) Instrument QC Batch: MA50895

(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: DUP-13
Lab Sample ID: JD28643-26
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/15/21
Date Received: 07/20/21
Percent Solids: 79.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	13.3	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit



Dayton, NJ

Section 5


Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody


 S3 F8		Subcontract Chain of Custody SGS - North America 2225 US 130 Dayton NJ 08810		JD 28643 Alpha Job Number L2120471	
Client: Alpha Analytical, Inc. Address: Alpha Analytical, Inc. 100 Phoenix, MA 01931-1000 Phone: 501.812.2033 Email: nyakar@alphalab.com		Project Location: PA Project Manager: Marking Yaguez Date: 01/15/2018 Deliverables:		State/ederal Program Regulatory Criteria:	
Reference following Alpha Job Number or final report/deliverables: L2118137		Report to include Method Name: I.G.S.R.C.S.D			
Additional Comments: Send all results reports to subreport@alphalab.com. ECMS/ERRP needed					
Lab ID	QID#	Collection Date/Time	Sample Matrix	Analysis	Rel. Sec.
1 2 3 4 5 6 7 8 9 10	PA121-03-5501	01-15-21 08:35	SOIL	Total Lead	
	PA121-04-5501	01-15-21 08:45	SOIL	Total Lead	
	PA121-05-5501	01-15-21 08:55	SOIL	Total Lead	
	PA121-06-5501	01-15-21 09:05	SOIL	Total Lead	
	PA121-07-5501	01-15-21 09:15	SOIL	Total Lead	
	PA121-08-5501	01-15-21 09:25	SOIL	Total Lead	
	PA121-09-5501	01-15-21 09:35	SOIL	Total Lead	
	PA121-10-5501	01-15-21 09:45	SOIL	Total Lead	
	PA121-11-5501	01-15-21 09:55	SOIL	Total Lead	
	PA121-12-5501	01-15-21 10:05	SOIL	Total Lead	
D-7 T1					
Relinquished By:		Received By:		Received By:	
Paul Maggella		Marking Yaguez		Paul Maggella	
Paul Maggella		Marking Yaguez		Paul Maggella	
Dan D...		Marking Yaguez		Paul Maggella	
In: m No: AL, S, CO.					

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JKS
S.R.E
SP




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		Subcontract Chain of Custody SGS - North America 2235 US-130 Dayton, MI 48810		JD28643 Alpha Job Number L2133177	
Client: Alpha Analytical Labs Address: 1 Light Walkway Drive Waltham, MA 01981-1019 Phone: 201-812-5017 Email: myalpha@alphalabs.com		Project Location: PA Project Manager: Nadine Yates Due Date: 02/05/2015		State/Territorial Program: Regulatory Criteria:	
Reference following Alpha Job Number on line report (please call 82138-17) Report to include Method Blank, LC, SLC, SP					
Additional Comments: Send all results reports to subcontracts@alphalabs.com EDU/SL/ERRPT needed					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch ID
09	PS121-55501	21-15-21 11:12	SOL	Total lead	
11	PS121-55501	21-15-21 11:24	SOL	Total lead	
12	PS121-55501	21-15-21 11:24	SOL	Total lead	
13	PS121-55501	21-15-21 11:25	SOL	Total lead	
14	PS121-55501	21-15-21 11:25	SOL	Total lead	
15	PS121-55501	21-15-21 11:25	SOL	Total lead	
Retrieved by: <i>Paul Maggella</i> Date/Time: <i>7/17/12</i>		Retrieved by: <i>Paul Maggella</i> Date/Time: <i>7/17/12</i>		Retrieved by: <i>Paul Maggella</i> Date/Time: <i>7/17/12</i>	
Form No: <i>1001</i> ASSESSMENT LABEL VERIFICATION: _____					

IR-5 3.0% IA

JD28643: Chain of Custody

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		Subcontract Chain of Custody Sub: North America 2235 LS-130 Dayton NJ 08810		JD28643 Alpha Job Number L2138177	
Client: Alpha Analytical Labs Address: Alpha Medical Office Woodborough, MA 01581-1019 Phone: 201.812.9031 Email: nyakw@alphalabs.com		Project Location: PA Project Manager: Madeline Yakes Due Date: Deliverables:		Classification Program: Regulatory Criteria:	
Reference: Following Alpha Job Number on final report/deliverables: L2138177		Report to include: Method Bays, LCS/CCED			
Additional Comments: Send all results reports to: subreports@alphalabs.com EQ/IST/RRP's needed					
Lab #1	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch #2
	PA000010001	07-14-21 13:35	SO4	Total Lead	
	PA000010002	07-14-21 13:35	SO4	Total Lead	
	PA000010003	07-15-21 13:35	SO4	Total Lead	
	PA000010004	07-15-21 13:40	SO4	Total Lead	
	PA000010005	07-15-21 13:45	SO4	Total Lead	
	PA000010006	07-16-21 14:01	WATER	Total Lead	
	PA000010007	07-16-21 14:01	WATER	Total Lead	
	PA000010008	07-16-21 14:30	WATER	Total Lead	
		Retrieved By	Date/Time	Received By	Date/Time
		<i>[Signature]</i>	7/19/21	<i>[Signature]</i>	7/19/21
		<i>Paul Maggella</i>	7/17/21 10:39:05	<i>Paul Maggella</i>	7/19/21 10:39:05
FCR: No AL subcon		<i>Don Dore</i>	7/20/21 10:39:05	<i>Don Dore</i>	7/20/21 10:39:05

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205-385

JD28643: Chain of Custody

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		Subcontract Chain of Custody SGS - North America 2235 US-130 Danvers, NJ 08810		J092693 Alpha Job Number 12138117	
Client: Alpha Analytical Labs Address: 60th Walling Lane Westborough, MA 01581-1019 Phone: 201 812 9037 Email: myalpha@alphalab.com		Project Location: PA Project Manager: Raquel Yotco Date: 07/21/2015 Delivered:		State/Federal Program Regulatory Code:	
Reference: Following Alpha Job Number on final report: 12138117 Report to include Method Blank, ICS/LFSO					
Additional Comments: Send all results report to subreport@alphalab.com EDU15TERRP1 needed					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch #
	061	07-21-2015	Soil	Soil Lead	
Retrieved By:		Date/Time	Received By:	Date/Time	
Paul Maggella		7/21/15 10:30	Paul Maggella	7/21/15 10:30	
Paul Maggella		7/21/15 10:30	Paul Maggella	7/21/15 10:30	
Diana Lopez		7/21/15 10:30	Diana Lopez	7/21/15 10:30	

5.1
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IR-5 3.8°C
IP

JD28643: Chain of Custody

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SGS Sample Receipt Summary

Job Number: JD28643

Client: ALPHA ANALYTICAL

Project: L2138177

Date / Time Received: 7/20/2021 10:35:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.8);

Cooler Security

- | | <u>Y or N</u> | | | <u>Y or N</u> | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

- | | <u>Y or N</u> | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | _____ | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control Preservation

- | | <u>Y</u> | <u>or</u> | <u>N</u> | <u>N/A</u> |
|---------------------------------|-------------------------------------|-----------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

- | | <u>Y or N</u> | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

- | | <u>Y or N</u> | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

- | | <u>Y</u> | <u>or</u> | <u>N</u> | <u>N/A</u> |
|---|-------------------------------------|-----------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s:	pH 1-12: 212820	pH 12+: 203117A	Other: (Specify) _____
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Comments

SM089-03
Rev. Date 12/7/17

JD28643: Chain of Custody

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5.1
5



Dayton, NJ

Section 6

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

6.1.1
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

Zirconium 2.0 .04 .23

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.1.1
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MS	SpikeLot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	17.8 258	246	97.6	75-125
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Tungsten				
Vanadium				
Zinc				
Zirconium				

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

6.1.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MS	Spikelet MPSPK2	% Rec	QC Limits
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Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

6.1.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

6.1.2
6



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
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Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

6.1.2
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

6.1.3
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zirconium

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

6.1.3

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
-------	-----------------------	---------	------	--------------

Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

6.1.4
6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

	JD28614-6		QC
Metal	Original SDL 1:5	%DIF	Limits

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

6.1.4
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

6.2.1
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB	
				raw	final

Zirconium 2.0 .04 .23

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.2.1
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MS	SpikeLot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	153	459	241	126.8N(a) 75-125
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

6.2.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MS	Spike lot MPSPK2	% Rec	QC Limits
-------	---------------------------	---------------------	-------	--------------

Zirconium

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

6.2.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	153	324	239	71.6N(a) 34.5 (b)	20
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

6.2.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
-------	----------------------------	--------------------	-------	------------	-------------

Zirconium

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- (b) High rpd due to possible sample nonhomogeneity.

6.2.2
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	211	200	105.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

6.2.3
6



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zirconium

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.2.3
6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original SDL 1:5	%DIF	QC Limits
-------	--------------------------------	------	--------------

Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Bismuth			
Boron			
Cadmium			
Calcium			
Chromium			
Cobalt			
Copper			
Iron			
Lead	1320	1430	8.8 0-10
Lithium			
Magnesium			
Manganese			
Molybdenum			
Nickel			
Phosphorus			
Potassium			
Selenium			
Silicon			
Silver			
Sodium			
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			
Zinc			

6.2.4
6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27578
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original SDL 1:5	%DIF	QC Limits
-------	--------------------------------	------	--------------

Zirconium

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

6.2.4
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

Zinc 60 .3 6.9

Zirconium 10 .5 4.1

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.3.1
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MS	SpikeLot MPSPK2		% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MS	SpikeLot MPSPK2	% Rec	QC Limits
-------	--------------------------	--------------------	-------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	SpikeLot MPSPK2 % Rec		MSD RPD	QC Limit
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1950	2000	97.5	1.0 20
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
-------	---------------------------	--------------------	-------	------------	-------------

Zinc anr

Zirconium

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested

6.3.2
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

6.3.3
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

6.3.3

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original SDL 1:5	%DIF	QC Limits
Aluminum	anr		
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium			
Cerium			
Chromium	anr		
Cobalt			
Copper	anr		
Iron	anr		
Lead	0.00	0.00	NC 0-10
Lithium			
Magnesium			
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

6.3.4
6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original SDL 1:5	%DIF	QC Limits
-------	-------------------------------	------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.3.4

6



ANALYTICAL REPORT

Lab Number:	L2138358
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:	07/29/21

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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: L2138358

Report Date: 07/29/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138358-01	PB38-01-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:05	07/17/21
L2138358-02	PB38-02-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:15	07/17/21
L2138358-03	PB38-03-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:30	07/17/21
L2138358-04	PB38-04-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:35	07/17/21
L2138358-05	PB38-05-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:45	07/17/21
L2138358-06	PB38-06-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:05	07/17/21
L2138358-07	PB38-07-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:35	07/17/21
L2138358-08	PB38-08-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:45	07/17/21
L2138358-09	PB38-09-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:55	07/17/21
L2138358-10	PB38-10-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:05	07/17/21
L2138358-11	PB38-11-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:35	07/17/21
L2138358-12	PB38-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:45	07/17/21
L2138358-13	PB38-13-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:55	07/17/21
L2138358-14	PB38-14-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:05	07/17/21
L2138358-15	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:10	07/17/21
L2138358-16	FB-210716-1	WATER	PHILADELPHIA, PA	07/16/21 11:00	07/17/21
L2138358-17	FB-210716-2	WATER	PHILADELPHIA, PA	07/16/21 13:00	07/17/21
L2138358-18	TB-210716	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-19	DUP-14	SOIL	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-22	PB85-11-SS01	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

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: L2138358
Report Date: 07/29/21

Case Narrative (continued)

Report Submission

July 29, 2021: This final report includes the results of all requested analyses

July 23, 2021: 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.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2138358-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard. 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.

L2138358-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); 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.

L2138358-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (189%); 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.

L2138358-12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2138358-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%);

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Case Narrative (continued)

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.

L2138358-14: 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.

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: 07/29/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-01
 Client ID: PB38-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:05
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 11:51
 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	0.0024		mg/kg	0.0024	0.00025	1
Benzene	0.10		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.015		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.0050		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.038		mg/kg	0.0024	0.00069	1
o-Xylene	0.0049		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.043		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.028		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0062		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0061		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	143	Q	70-130
Dibromofluoromethane	63	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-02
Client ID: PB38-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:15
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 10:11
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0024		mg/kg	0.0020	0.00021	1
Benzene	0.00076		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00080	J	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	0.0047		mg/kg	0.0020	0.00057	1
o-Xylene	0.0026		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0073		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0038		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00088	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03
 Client ID: PB38-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:30
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 22:00
 Analyst: AJK
 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	0.21	0.022	1
Benzene	7.2		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	3.3		mg/kg	0.11	0.058	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.031	1
Ethylbenzene	1.8		mg/kg	0.11	0.015	1
p/m-Xylene	4.9		mg/kg	0.21	0.060	1
o-Xylene	2.0		mg/kg	0.11	0.031	1
Xylenes, Total	6.9		mg/kg	0.11	0.031	1
Isopropylbenzene	0.50		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.21	0.021	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.21	0.036	1
Naphthalene	2.0		mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-04
 Client ID: PB38-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:35
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 08:56
 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	0.12	0.012	1
Benzene	10.		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	1.2		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	15.		mg/kg	0.059	0.0083	1
p/m-Xylene	16.		mg/kg	0.12	0.033	1
o-Xylene	5.9		mg/kg	0.059	0.017	1
Xylenes, Total	22.		mg/kg	0.059	0.017	1
Isopropylbenzene	5.5		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	5.4		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	150	Q	70-130
Dibromofluoromethane	70		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-05
 Client ID: PB38-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:45
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 17:50
 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	0.0021	0.00021	1
Benzene	0.00054		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	0.0042		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0010		mg/kg	0.0010	0.00015	1
p/m-Xylene	0.035		mg/kg	0.0021	0.00058	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.053		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00035	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0090		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	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-06
 Client ID: PB38-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:05
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 18:40
 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	0.11		mg/kg	0.0022	0.00022	1
Benzene	0.038		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.0011		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00074	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0022		mg/kg	0.0022	0.00061	1
o-Xylene	0.0014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0036		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00073	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0013	J	mg/kg	0.0022	0.00036	1
Naphthalene	0.00093	J	mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-07
 Client ID: PB38-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:35
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 09:46
 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	0.00044	J	mg/kg	0.0019	0.00019	1
Benzene	0.00055		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	0.00043	J	mg/kg	0.00096	0.00013	1
p/m-Xylene	0.00075	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00045	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0012	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00044	J	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
Naphthalene	0.0010	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D2
 Client ID: PB38-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:45
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 08:06
 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						
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D
 Client ID: PB38-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:45
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 22:51
 Analyst: MV
 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	0.60	0.060	5
Benzene	8.4		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	20.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	39.		mg/kg	0.30	0.042	5
p/m-Xylene	66.		mg/kg	0.60	0.17	5
o-Xylene	10.		mg/kg	0.30	0.087	5
Xylenes, Total	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	8.0		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	49.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.60	0.10	5
Naphthalene	24.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-09
 Client ID: PB38-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:55
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 19:05
 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	0.00073	J	mg/kg	0.0020	0.00021	1
Benzene	0.00020	J	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	0.00058	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	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-10
 Client ID: PB38-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:05
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 23:16
 Analyst: MV
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.013	1
Benzene	1.1		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.064		mg/kg	0.063	0.016	1
Toluene	3.9		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.40		mg/kg	0.063	0.0089	1
p/m-Xylene	4.0		mg/kg	0.12	0.035	1
o-Xylene	0.95		mg/kg	0.063	0.018	1
Xylenes, Total	5.0		mg/kg	0.063	0.018	1
Isopropylbenzene	0.020	J	mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.12	0.021	1
Naphthalene	0.24	J	mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11
 Client ID: PB38-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:35
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 19:30
 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	0.0020	J	mg/kg	0.0022	0.00022	1
Benzene	0.0014		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.020		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.0043		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.027		mg/kg	0.0022	0.00063	1
o-Xylene	0.014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.041		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0030		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0026		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.0075		mg/kg	0.0022	0.00037	1
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12 D
 Client ID: PB38-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:45
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 23:41
 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	0.059	J	mg/kg	0.26	0.026	2
Benzene	0.040	J	mg/kg	0.064	0.021	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	2
Toluene	ND		mg/kg	0.13	0.070	2
1,2-Dibromoethane	ND		mg/kg	0.064	0.038	2
Ethylbenzene	0.032	J	mg/kg	0.13	0.018	2
p/m-Xylene	0.20	J	mg/kg	0.26	0.072	2
o-Xylene	0.079	J	mg/kg	0.13	0.037	2
Xylenes, Total	0.28	J	mg/kg	0.13	0.037	2
Isopropylbenzene	0.42		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.18	J	mg/kg	0.26	0.043	2
Naphthalene	0.34	J	mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	189	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13 D2
 Client ID: PB38-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:55
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 12:41
 Analyst: KJD
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	98.		mg/kg	1.2	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13 D
 Client ID: PB38-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:55
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 00:06
 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	0.50	0.050	4
Benzene	19.		mg/kg	0.12	0.042	4
1,2-Dichloroethane	0.078	J	mg/kg	0.25	0.065	4
Toluene	0.75		mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.074	4
Ethylbenzene	28.		mg/kg	0.25	0.035	4
p/m-Xylene	40.		mg/kg	0.50	0.14	4
o-Xylene	1.7		mg/kg	0.25	0.073	4
Xylenes, Total	42.		mg/kg	0.25	0.073	4
Isopropylbenzene	5.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	31.		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	96.	E	mg/kg	0.50	0.084	4
Naphthalene	12.		mg/kg	1.0	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-14
 Client ID: PB38-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 12:05
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 00:31
 Analyst: MV
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.054		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.080	0.020	1
Toluene	0.082		mg/kg	0.080	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	0.050	J	mg/kg	0.080	0.011	1
p/m-Xylene	0.22		mg/kg	0.16	0.045	1
o-Xylene	0.086		mg/kg	0.080	0.023	1
Xylenes, Total	0.31		mg/kg	0.080	0.023	1
Isopropylbenzene	0.10		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.046	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.16	0.027	1
Naphthalene	0.71		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-15
 Client ID: PB85-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 12:10
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 19:55
 Analyst: AJK
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00042	J	mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.00033	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00043	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-16
 Client ID: FB-210716-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/20/21 13:38
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/20/21 10:45

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: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-16
 Client ID: FB-210716-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/21/21 23:45
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-17
 Client ID: FB-210716-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 13:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/20/21 13:45
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/20/21 10:45

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: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-17
 Client ID: FB-210716-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 13:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 00:11
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-18
 Client ID: TB-210716
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 00:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/20/21 13:51
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-18
 Client ID: TB-210716
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 00:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 00:38
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-19
 Client ID: DUP-14
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 00:00
 Date Received: 07/17/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/22/21 11:01
 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	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	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	0.00062	0.00036	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
Naphthalene	ND		mg/kg	0.0050	0.00081	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/20/21 11:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-18 Batch: WG1525736-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 07/22/21 05:31
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,08,13 Batch: WG1526522-10					
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	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,08,10,12-14 Batch: WG1526522-5					
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	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05-06,09,11,15 Batch: WG1526523-5					
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	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:46
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1526647-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 07/22/21 05:31
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,07,19 Batch: WG1526784-5					
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	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138358

Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-18 Batch: WG1525736-2									
1,2-Dibromoethane	96		-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,08,10,12-14 Batch: WG1526522-3 WG1526522-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,08,13 Batch: WG1526522-8 WG1526522-9									
Methyl tert butyl ether	84		86		66-130		2		30
Benzene	88		88		70-130		0		30
1,2-Dichloroethane	76		77		70-130		1		30
Toluene	85		86		70-130		1		30
1,2-Dibromoethane	85		87		70-130		2		30
Ethylbenzene	88		88		70-130		0		30
p/m-Xylene	90		89		70-130		1		30
o-Xylene	91		92		70-130		1		30
Isopropylbenzene	85		85		70-130		0		30
1,3,5-Trimethylbenzene	84		84		70-130		0		30
1,2,4-Trimethylbenzene	85		84		70-130		1		30
Naphthalene	82		85		70-130		4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05-06,09,11,15 Batch: WG1526523-3 WG1526523-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1526647-3 WG1526647-4								
Methyl tert butyl ether	96		100		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	98		99		70-130	1		20
Toluene	96		100		70-130	4		20
1,2-Dibromoethane	86		90		70-130	5		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	97		100		70-130	3		20
1,3,5-Trimethylbenzene	90		92		64-130	2		20
1,2,4-Trimethylbenzene	97		94		70-130	3		20
Naphthalene	90		96		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	107		105		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,07,19 Batch: WG1526784-3 WG1526784-4									
Methyl tert butyl ether	84		86		66-130		2		30
Benzene	88		88		70-130		0		30
1,2-Dichloroethane	76		77		70-130		1		30
Toluene	85		86		70-130		1		30
1,2-Dibromoethane	85		87		70-130		2		30
Ethylbenzene	88		88		70-130		0		30
p/m-Xylene	90		89		70-130		1		30
o-Xylene	91		92		70-130		1		30
Isopropylbenzene	85		85		70-130		0		30
1,3,5-Trimethylbenzene	84		84		70-130		0		30
1,2,4-Trimethylbenzene	85		84		70-130		1		30
Naphthalene	82		85		70-130		4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-01

Date Collected: 07/16/21 09:05

Client ID: PB38-01-SS01

Date Received: 07/17/21

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	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-02
 Client ID: PB38-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:15
 Date Received: 07/17/21
 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	80.1		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03

Date Collected: 07/16/21 09:30

Client ID: PB38-03-SS01

Date Received: 07/17/21

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	82.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-04

Date Collected: 07/16/21 09:35

Client ID: PB38-04-SS01

Date Received: 07/17/21

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	83.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-05
Client ID: PB38-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:45
Date Received: 07/17/21
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	79.7		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-06
 Client ID: PB38-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:05
 Date Received: 07/17/21
 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	82.9		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-07

Date Collected: 07/16/21 10:35

Client ID: PB38-07-SS01

Date Received: 07/17/21

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	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08

Date Collected: 07/16/21 10:45

Client ID: PB38-08-SS01

Date Received: 07/17/21

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	84.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-09
 Client ID: PB38-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:55
 Date Received: 07/17/21
 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	86.4		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**SAMPLE RESULTS**

Lab ID: L2138358-10

Date Collected: 07/16/21 11:05

Client ID: PB38-10-SS01

Date Received: 07/17/21

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	85.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11

Date Collected: 07/16/21 11:35

Client ID: PB38-11-SS01

Date Received: 07/17/21

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	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12
Client ID: PB38-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:45
Date Received: 07/17/21
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	82.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**SAMPLE RESULTS**

Lab ID: L2138358-13

Date Collected: 07/16/21 11:55

Client ID: PB38-13-SS01

Date Received: 07/17/21

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	81.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-14
 Client ID: PB38-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 12:05
 Date Received: 07/17/21
 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	74.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-15

Date Collected: 07/16/21 12:10

Client ID: PB85-12-SS01

Date Received: 07/17/21

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	-	07/20/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**SAMPLE RESULTS**

Lab ID: L2138358-19

Date Collected: 07/16/21 00:00

Client ID: DUP-14

Date Received: 07/17/21

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	88.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138358

Report Date: 07/29/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,19 QC Batch ID: WG1525654-1 QC Sample: L2138358-01 Client ID: PB38-01-SS01						
Solids, Total	81.3	80.9	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**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(*)
L2138358-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-01B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-02B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-03B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-04B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-05B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-05C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-05D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-06B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-07B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-08A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-08B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-09A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-09B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-10B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-11A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-11B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-12A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-12B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-13A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-13B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-14A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-14B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-15A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-15B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-16A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2138358**Project Number:** 200.00135.005.03**Report Date:** 07/29/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-16E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-16F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-17A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-18A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18C	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-18D	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-19A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-19B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2138358-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-22A	Vial MeOH preserved	B	NA		4.5	Y	Absent		ARCHIVE()
L2138358-22B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		ARCHIVE()

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

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: L2138358
Report Date: 07/29/21

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: L2138358
Report Date: 07/29/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2138358

Project Number: 200.00135.005.03

Report Date: 07/29/21

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-Terpeneol

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-Terpeneol; 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 2



Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3268

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 #: 200.00135.005.03
 Project Manager: William Schmidt
 ALPHA Quote #: 13161

Turn-Around Time

Fax: Standard Rush (ONLY IF PRE-APPROVED)
 Email: William.Schmidt@ransomenv.com
 These samples have been Previously analyzed by Alpha 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 (see attached for compounds)
 Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 7/17/21 ALPHA Job #: 2138358

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client Info PO #: 3894
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

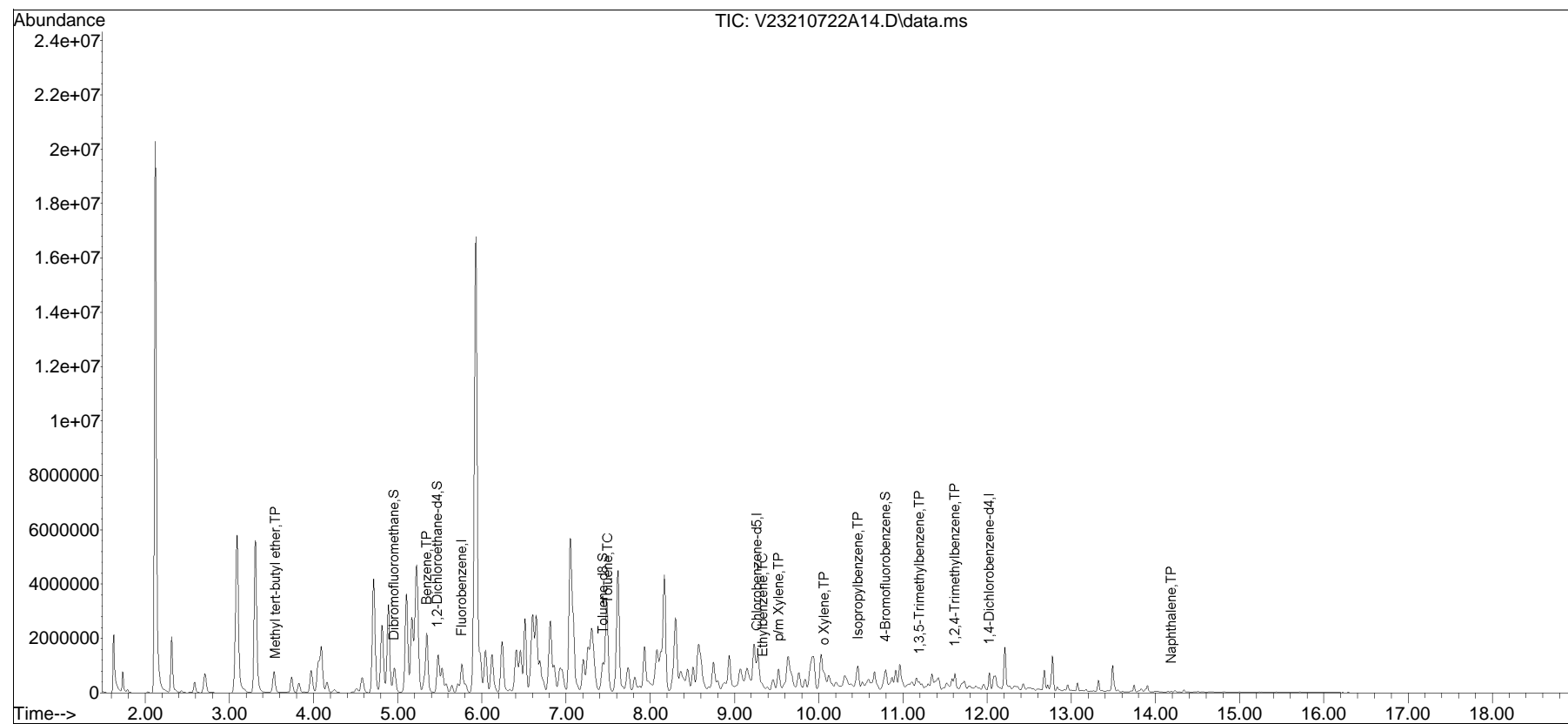
PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)
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Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210722A\
 Data File : V23210722A14.D
 Acq On : 22 Jul 2021 11:51 am
 Operator : VOA123:JC
 Sample : 12138358-01,31,5.02,5,,b
 Misc : WG1526784,ICAL18108
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 22 12:59:24 2021
 Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jun 29 14:55:56 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•

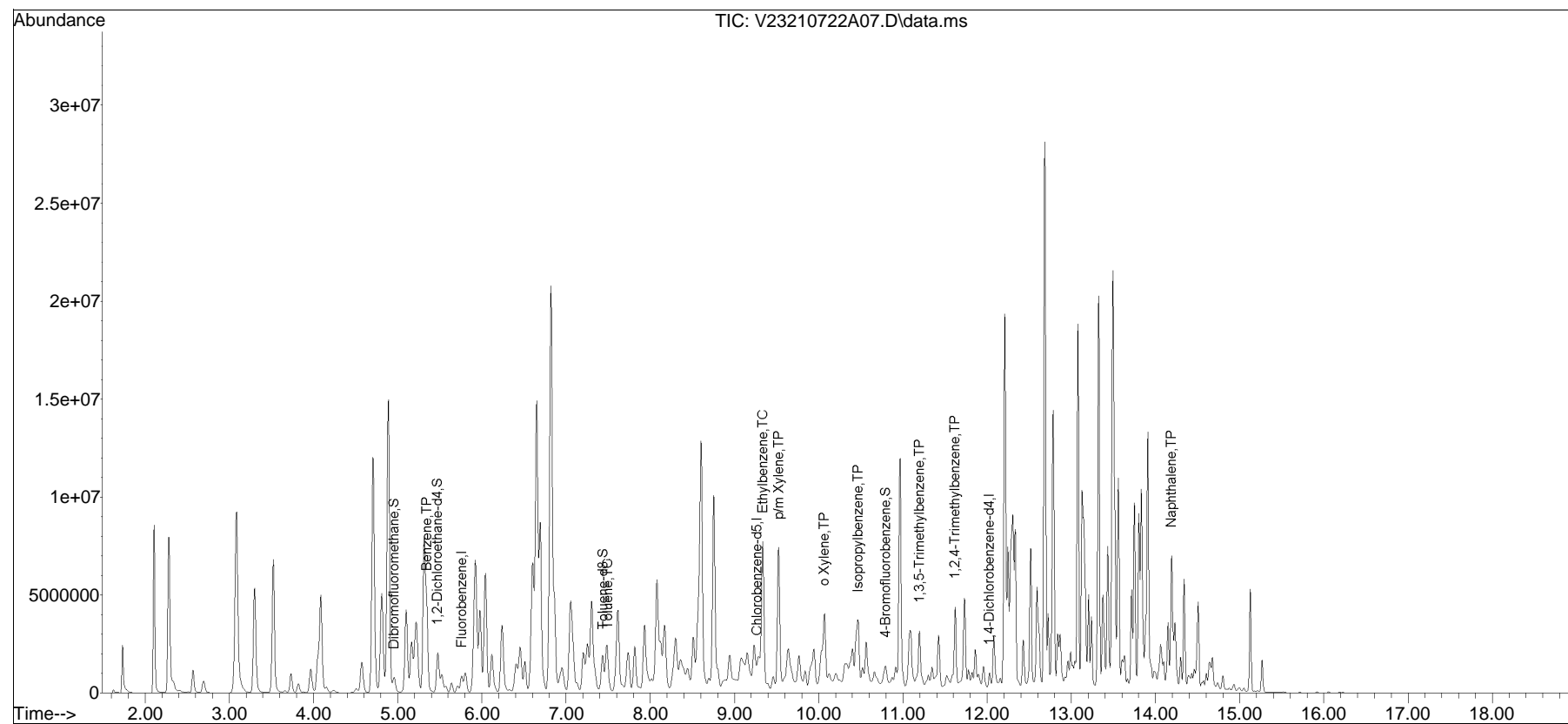


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210722A\
Data File : V23210722A07.D
Acq On : 22 Jul 2021 08:56 am
Operator : VOA123:JC
Sample : 12138358-04,31h,6.18,5,0.100,,a
Misc : WG1526522,ICAL18108
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 22 11:55:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•

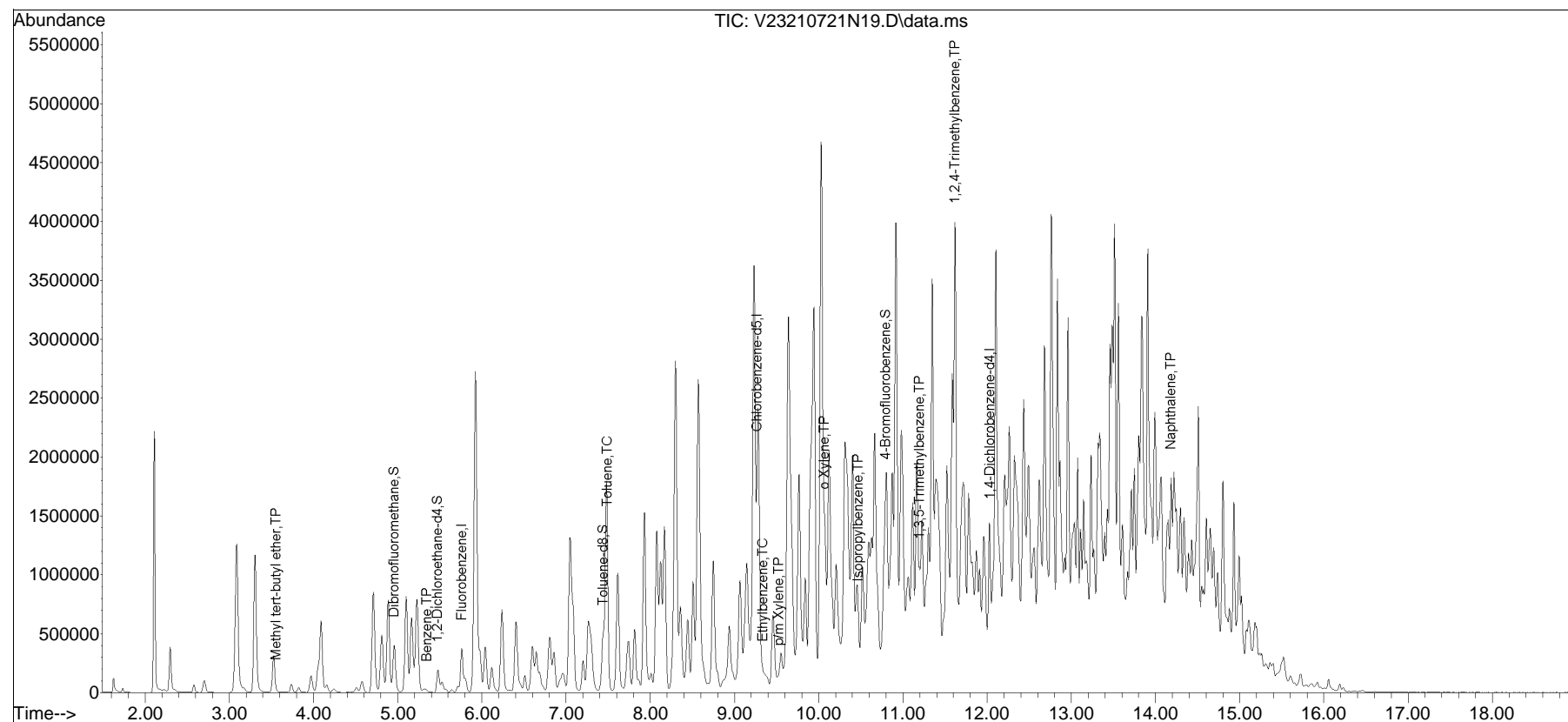


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N19.D
Acq On : 21 Jul 2021 11:41 pm
Operator : VOA123:MV
Sample : L2138358-12D,31H,5.61,5,0.050,,A
Misc : WG1526522,ICAL18108
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 22 04:07:51 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•

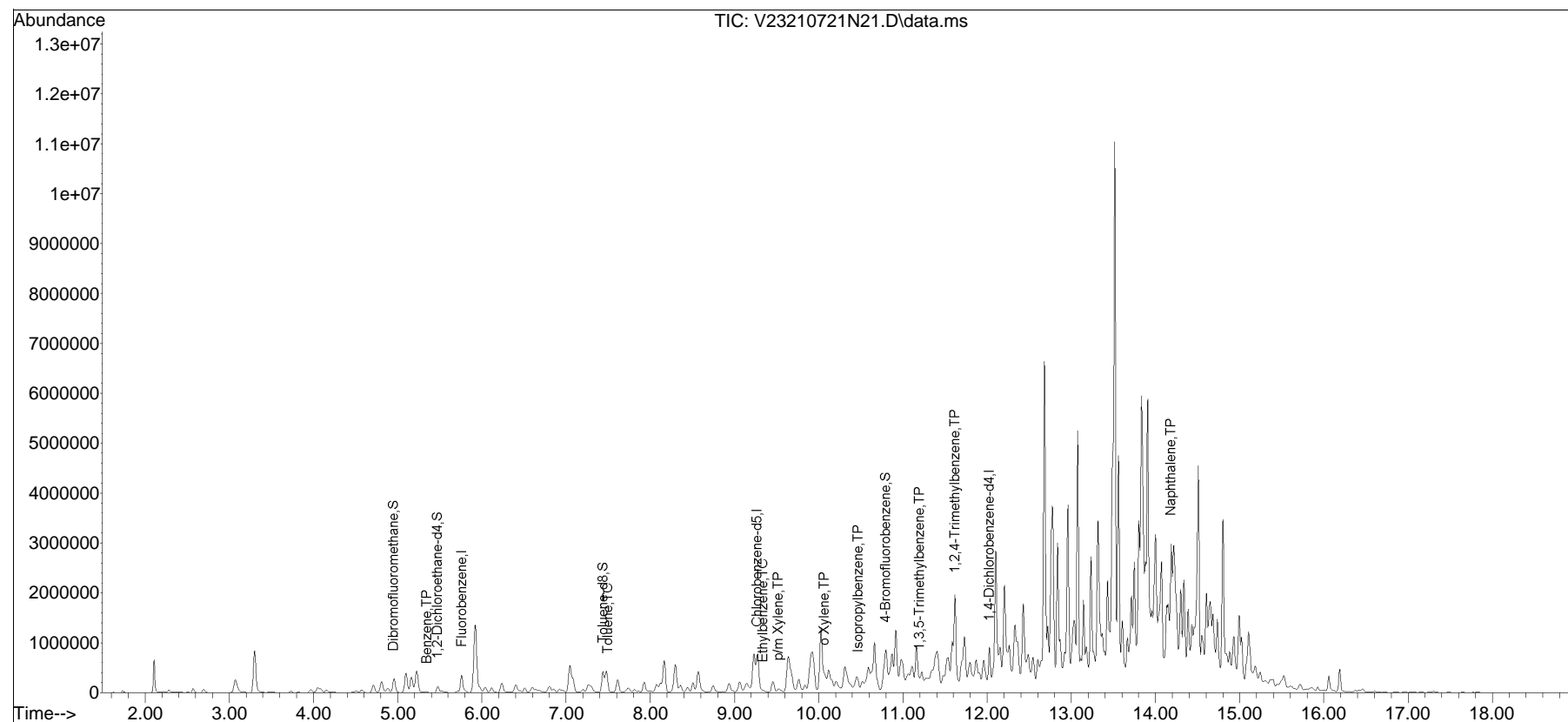


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N21.D
Acq On : 22 Jul 2021 12:31 am
Operator : VOA123:MV
Sample : L2138358-14,31H,5.41,5,0.100,,A
Misc : WG1526522,ICAL18108
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 22 04:04:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•





Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138358

SGS Job Number: JD28614

Sampling Date: 07/16/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walku Drive
Westborough, MA 01581

ATTN: Ellen Collins

Total number of pages in report: **190**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

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SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JD28614-1	07/16/21	09:05	07/20/21	SO	Soil	PB38-01-SS01
JD28614-2	07/16/21	09:15	07/20/21	SO	Soil	PB38-02-SS01
JD28614-3	07/16/21	09:30	07/20/21	SO	Soil	PB38-03-SS01
JD28614-4	07/16/21	09:35	07/20/21	SO	Soil	PB38-04-SS01
JD28614-5	07/16/21	09:45	07/20/21	SO	Soil	PB38-05-SS01
JD28614-6	07/16/21	10:05	07/20/21	SO	Soil	PB38-06-SS01
JD28614-7	07/16/21	10:35	07/20/21	SO	Soil	PB38-07-SS01
JD28614-8	07/16/21	10:45	07/20/21	SO	Soil	PB38-08-SS01
JD28614-9	07/16/21	10:55	07/20/21	SO	Soil	PB38-09-SS01
JD28614-10	07/16/21	11:05	07/20/21	SO	Soil	PB38-10-SS01
JD28614-11	07/16/21	11:35	07/20/21	SO	Soil	PB38-11-SS01
JD28614-12	07/16/21	11:45	07/20/21	SO	Soil	PB38-12-SS01
JD28614-13	07/16/21	11:55	07/20/21	SO	Soil	PB38-13-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary

(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28614Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JD28614-14	07/16/21	12:05	07/20/21	SO	Soil	PB38-14-SS01
JD28614-15	07/16/21	11:00	07/20/21	AQ	Field Blank Soil	FB-210716-1
JD28614-16	07/16/21	13:00	07/20/21	AQ	Field Blank Soil	FB-210716-2
JD28614-17	07/16/21	00:00	07/20/21	SO	Soil	DUP-14

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Alpha Analytical Laboratories, Inc.

Job No JD28614

Site: Alpha Analytical, PA

Report Date 7/29/2021 8:54:51 AM

On 07/20/2021, 15 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28614 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix: AQ

Batch ID: MP27687

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix: SO

Batch ID: MP27576

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Thursday, July 29, 2021

Page 1 of 1

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-1	PB38-01-SS01					
Lead		110	2.6		mg/kg	SW846 6010D
JD28614-2	PB38-02-SS01					
Lead		22.9	2.4		mg/kg	SW846 6010D
JD28614-3	PB38-03-SS01					
Lead		96.7	2.4		mg/kg	SW846 6010D
JD28614-4	PB38-04-SS01					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-5	PB38-05-SS01					
Lead		13.6	2.4		mg/kg	SW846 6010D
JD28614-6	PB38-06-SS01					
Lead		17.8	2.5		mg/kg	SW846 6010D
JD28614-7	PB38-07-SS01					
Lead		81.7	2.4		mg/kg	SW846 6010D
JD28614-8	PB38-08-SS01					
Lead		30.3	2.3		mg/kg	SW846 6010D
JD28614-9	PB38-09-SS01					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-10	PB38-10-SS01					
Lead		464	2.5		mg/kg	SW846 6010D
JD28614-11	PB38-11-SS01					
Lead		780	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-12	PB38-12-SS01					
Lead		31.6	3.3		mg/kg	SW846 6010D
JD28614-13	PB38-13-SS01					
Lead		12.7	2.4		mg/kg	SW846 6010D
JD28614-14	PB38-14-SS01					
Lead		36.6	2.8		mg/kg	SW846 6010D
JD28614-15	FB-210716-1					
No hits reported in this sample.						
JD28614-16	FB-210716-2					
No hits reported in this sample.						
JD28614-17	DUP-14					
Lead		179	2.2		mg/kg	SW846 6010D



Dayton, NJ

Section 4

4

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-01-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-1	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.3
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	110	2.6	mg/kg	1	07/23/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-02-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-2	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 80.1
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	22.9	2.4	mg/kg	1	07/23/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-03-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-3	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 82.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	96.7	2.4	mg/kg	1	07/23/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-04-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-4	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 83.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-05-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-5	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 79.7
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	13.6	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-06-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-6	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 82.9
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	17.8	2.5	mg/kg	1	07/23/21	07/24/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50885

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-07-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-7	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 86.9
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	81.7	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-08-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-8	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 84.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	30.3	2.3	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-09-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-9	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 86.4
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-10-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-10	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 85.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	464	2.5	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-11-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-11	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 84.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	780	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-12-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-12	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 82.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	31.6	3.3	mg/kg	2	07/23/21	07/28/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50902

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-13-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-13	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 81.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	12.7	2.4	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-14-SS01	Date Sampled: 07/16/21
Lab Sample ID: JD28614-14	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 74.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	36.6	2.8	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: FB-210716-1	Date Sampled: 07/16/21
Lab Sample ID: JD28614-15	Date Received: 07/20/21
Matrix: AQ - Field Blank Soil	Percent Solids: n/a
Project: Alpha Analytical, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	07/27/21	07/27/21 ND	SW846 6010D ¹	SW846 3010A ²

(1) Instrument QC Batch: MA50895

(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: FB-210716-2	Date Sampled: 07/16/21
Lab Sample ID: JD28614-16	Date Received: 07/20/21
Matrix: AQ - Field Blank Soil	Percent Solids: n/a
Project: Alpha Analytical, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	07/27/21	07/27/21 ND	SW846 6010D ¹	SW846 3010A ²

(1) Instrument QC Batch: MA50895

(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: DUP-14	Date Sampled: 07/16/21
Lab Sample ID: JD28614-17	Date Received: 07/20/21
Matrix: SO - Soil	Percent Solids: 88.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	179	2.2	mg/kg	1	07/23/21	07/26/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50891

(2) Prep QC Batch: MP27576

RL = Reporting Limit



Dayton, NJ

Section 5


Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

 SG FB		Subcontract Chain of Custody SGS Analytical 2295 US-130 Dayton, NJ 08810		JD28614 Alpha Job Number 121A358	
Client: Alpha Analytical Labs Address: 6125 Highway Drive Westborough, MA 01581-1519 Phone: 801.212.9037 Email: myalpha@alphalab.com		Project Location: PA Project Manager: Kevin Yankus Date Date: (Date/Time)		State/Federal Program: Respiratory System:	
Reference Primary Alpha Job Number on final report/label: 121A358		Report to include Method Blank, 1, 5, 50, 1, 50			
Additional Comments: Send all results reports to subreport@alpha.com EQU STERRA needed					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch #
1	PH18-01-5501	01-18-21 09:35	SOIL	Total Lead	E37 T2 129
2	PH18-02-5501	01-18-21 09:35	SOIL	Total Lead	
3	PH18-03-5501	01-18-21 09:30	SOIL	Total Lead	
4	PH18-04-5501	01-18-21 09:35	SOIL	Total Lead	
5	PH18-05-5501	01-18-21 09:35	SOIL	Total Lead	
6	PH18-06-5501	01-18-21 12:25	SOIL	Total Lead	
7	PH18-07-5501	01-18-21 12:15	SOIL	Total Lead	
8	PH18-08-5501	01-18-21 12:45	SOIL	Total Lead	
9	PH18-09-5501	01-18-21 12:55	SOIL	Total Lead	
				INITIAL ASSESSMENT T2-203 LABEL VERIFICATION _____	
Prepared By: <i>[Signature]</i>		Date/Time: 7/19/21		Received By: <i>[Signature]</i>	
Exam No. At Site: 121A358		Date/Time: 7/19/21 10:35		Date/Time: 7/19/21 10:35	

5.1
5

IR-S
OK FOR
MHCJP

JD28614: Chain of Custody

Page 1 of 3

SGS Sample Receipt Summary

Job Number: JD28614

Client: ALPHA ANALYTICAL

Project: L2138358

Date / Time Received: 7/20/2021 10:35:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (4.1);

Cooler Temps (Corrected) °C: Cooler 1: (4.1);

Cooler Security

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | _____ | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control Preservation

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify) _____

Comments

SM089-03
Rev. Date 12/7/17

JD28614: Chain of Custody

Page 3 of 3

5.1
5

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-1 PB38-01-SS01	Collected: 16-JUL-21 09:05	By:		Received: 20-JUL-21	By: MK	
JD28614-1	SW846 6010D	24-JUL-21 02:56	ND	23-JUL-21	MS	PB
JD28614-2 PB38-02-SS01	Collected: 16-JUL-21 09:15	By:		Received: 20-JUL-21	By: MK	
JD28614-2	SW846 6010D	24-JUL-21 03:01	ND	23-JUL-21	MS	PB
JD28614-3 PB38-03-SS01	Collected: 16-JUL-21 09:30	By:		Received: 20-JUL-21	By: MK	
JD28614-3	SW846 6010D	24-JUL-21 03:06	ND	23-JUL-21	MS	PB
JD28614-4 PB38-04-SS01	Collected: 16-JUL-21 09:35	By:		Received: 20-JUL-21	By: MK	
JD28614-4	SW846 6010D	26-JUL-21 16:58	ND	23-JUL-21	MS	PB
JD28614-5 PB38-05-SS01	Collected: 16-JUL-21 09:45	By:		Received: 20-JUL-21	By: MK	
JD28614-5	SW846 6010D	26-JUL-21 17:03	ND	23-JUL-21	MS	PB
JD28614-6 PB38-06-SS01	Collected: 16-JUL-21 10:05	By:		Received: 20-JUL-21	By: MK	
JD28614-6	SW846 6010D	24-JUL-21 02:46	ND	23-JUL-21	MS	PB
JD28614-7 PB38-07-SS01	Collected: 16-JUL-21 10:35	By:		Received: 20-JUL-21	By: MK	
JD28614-7	SW846 6010D	26-JUL-21 17:08	ND	23-JUL-21	MS	PB
JD28614-8 PB38-08-SS01	Collected: 16-JUL-21 10:45	By:		Received: 20-JUL-21	By: MK	
JD28614-8	SW846 6010D	26-JUL-21 17:13	ND	23-JUL-21	MS	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-9 PB38-09-SS01	Collected: 16-JUL-21 10:55	By:	Received: 20-JUL-21	By: MK		
JD28614-9	SW846 6010D	26-JUL-21 17:18	ND	23-JUL-21	MS	PB
JD28614-10 PB38-10-SS01	Collected: 16-JUL-21 11:05	By:	Received: 20-JUL-21	By: MK		
JD28614-10	SW846 6010D	26-JUL-21 17:23	ND	23-JUL-21	MS	PB
JD28614-11 PB38-11-SS01	Collected: 16-JUL-21 11:35	By:	Received: 20-JUL-21	By: MK		
JD28614-11	SW846 6010D	26-JUL-21 17:38	ND	23-JUL-21	MS	PB
JD28614-12 PB38-12-SS01	Collected: 16-JUL-21 11:45	By:	Received: 20-JUL-21	By: MK		
JD28614-12	SW846 6010D	28-JUL-21 13:43	ND	23-JUL-21	MS	PB
JD28614-13 PB38-13-SS01	Collected: 16-JUL-21 11:55	By:	Received: 20-JUL-21	By: MK		
JD28614-13	SW846 6010D	26-JUL-21 17:49	ND	23-JUL-21	MS	PB
JD28614-14 PB38-14-SS01	Collected: 16-JUL-21 12:05	By:	Received: 20-JUL-21	By: MK		
JD28614-14	SW846 6010D	26-JUL-21 17:53	ND	23-JUL-21	MS	PB
JD28614-15 FB-210716-1	Collected: 16-JUL-21 11:00	By:	Received: 20-JUL-21	By: MK		
JD28614-15	SW846 6010D	27-JUL-21 21:56	ND	27-JUL-21	AK	PB
JD28614-16 FB-210716-2	Collected: 16-JUL-21 13:00	By:	Received: 20-JUL-21	By: MK		
JD28614-16	SW846 6010D	27-JUL-21 22:02	ND	27-JUL-21	AK	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
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JD28614-17 Collected: 16-JUL-21 00:00 By: Received: 20-JUL-21 By: MK
DUP-14

JD28614-17 SW846 6010D 26-JUL-21 17:58 ND 23-JUL-21 MS PB

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-1.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-1.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-1.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-1.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-1.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-1.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-2.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-2.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-2.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-2.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-2.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-2.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-3.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-3.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-3.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-3.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-3.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-3.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-4.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-4.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-4.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-4.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-4.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-4.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-5.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-5.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-5.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-5.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-5.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-5.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-6.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-6.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-6.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-6.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-6.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-6.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-7.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-7.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-7.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-7.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-7.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-7.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-8.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-8.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-8.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-8.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-8.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-8.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-9.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-9.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-9.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-9.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-9.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-9.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-9.1
JD28614-9.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-9.1

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-9.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-10.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-10.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-10.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-10.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-10.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-10.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-11.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-11.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-11.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-11.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-11.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-11.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-12.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-12.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-12.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-12.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-12.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-12.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-13.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-13.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-13.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-13.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-13.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-13.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-14.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-14.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-14.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-14.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-14.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-14.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-15.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-15.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-15.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-15.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-15.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-15.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-16.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-16.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-16.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-16.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-16.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-16.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-17.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-17.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-17.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-17.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-17.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-17.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage



Dayton, NJ

Section 6

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:21	MA50885-STD1	1		STDA
17:26	MA50885-STD2	1		STDB
17:31	ZZZZZZ	1		
17:36	ZZZZZZ	1		
17:41	MA50885-ICV1	1		
17:46	MA50885-ICB1	1		
17:51	MA50885-CCV1	1		
17:56	MA50885-CCB1	1		
18:01	MA50885-CRI1	1		
18:06	MA50885-CRID1	1		
18:11	MA50885-ICSA1	1		
18:16	MA50885-ICSAB1	1		
18:21	MA50885-HSTD1	1		
18:26	MA50885-HSTD2	1		
18:31	ZZZZZZ	1		
18:37	ZZZZZZ	1		
18:42	ZZZZZZ	1		
18:47	MA50885-CCV2	1		
18:52	MA50885-CCB2	1		
18:57	ZZZZZZ	5		
19:02	ZZZZZZ	5		
19:07	MA50885-HSTD3	1		
19:12	MA50885-CCV3	1		
19:17	MA50885-CCB3	1		
19:22	MP27580-S1	5		
19:27	MP27580-S2	5		
19:32	JD28370-6A	5		(sample used for QC only; not part of login JD28614)
19:37	MP27580-SD1	25		
19:42	ZZZZZZ	5		
19:48	ZZZZZZ	5		
19:53	ZZZZZZ	5		
19:58	ZZZZZZ	5		
20:03	ZZZZZZ	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:09	MA50885-CCV4	1		
20:13	MA50885-CCB4	1		
20:18	ZZZZZZ	5		
20:24	ZZZZZZ	5		
20:29	ZZZZZZ	5		
20:34	ZZZZZZ	5		
20:39	ZZZZZZ	5		
20:44	ZZZZZZ	5		
20:50	ZZZZZZ	5		
20:55	MP27581-MB1	5		
21:00	MP27581-B1	5		
21:05	MP27581-S1	5		
21:10	MA50885-CCV5	1		
21:15	MA50885-CCB5	1		
21:20	MP27581-S2	5		
21:25	JD28602-1A	5		(sample used for QC only; not part of login JD28614)
21:30	MP27581-SD1	25		
21:35	ZZZZZZ	5		
21:41	ZZZZZZ	5		
21:46	ZZZZZZ	5		
21:51	MP27582-MB1	5		
21:56	MP27582-B1	5		
22:01	MP27582-S1	5		
22:06	MP27582-S2	5		
22:11	MA50885-CCV6	1		
22:16	MA50885-CCB6	1		
22:21	JD28385-50	5		(sample used for QC only; not part of login JD28614)
22:26	MP27582-SD1	25		
22:31	ZZZZZZ	5		
22:36	ZZZZZZ	5		
22:41	ZZZZZZ	5		
22:46	MP27583-MB1	5		
22:51	MP27583-B1	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:56	MP27583-S1	5		
23:01	MP27583-S2	5		
23:06	JD28385-42	5		(sample used for QC only; not part of login JD28614)
23:11	MA50885-CCV7	1		
23:16	MA50885-CCB7	1		
23:21	MP27583-SD1	25		
23:26	ZZZZZZ	5		
23:32	ZZZZZZ	5		
23:37	ZZZZZZ	5		
23:42	ZZZZZZ	5		
23:47	ZZZZZZ	5		
23:52	MP27578-MB1	1		
23:58	MP27578-B1	1		
00:02	MP27578-S1	1		
00:07	MP27578-S2	1		
00:12	MA50885-CCV8	1		
00:17	MA50885-CCB8	1		
00:22	JD28643-11	1		(sample used for QC only; not part of login JD28614)
00:27	MP27578-SD1	5		
00:32	ZZZZZZ	1		
00:37	ZZZZZZ	1		
00:42	ZZZZZZ	1		
00:47	ZZZZZZ	1		
00:52	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:02	ZZZZZZ	1		
01:07	ZZZZZZ	1		
01:12	MA50885-CCV9	1		
01:17	MA50885-CCB9	1		
01:22	ZZZZZZ	1		
01:27	ZZZZZZ	1		
01:32	ZZZZZZ	1		
01:37	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Dilution Factor	PS Recov	Comments
01:42	ZZZZZZ	1		
01:47	ZZZZZZ	1		
01:51	ZZZZZZ	1		
01:56	ZZZZZZ	1		
02:01	ZZZZZZ	1		
02:06	ZZZZZZ	1		
02:11	MA50885-CCV10	1		
02:16	MA50885-CCB10	1		
02:21	ZZZZZZ	1		
02:26	MP27576-B1	1		
02:31	MP27576-MB1	1		
02:36	MP27576-S1	1		
02:41	MP27576-S2	1		
02:46	JD28614-6	1		
02:51	MP27576-SD1	5		
02:56	JD28614-1	1		
03:01	JD28614-2	1		
03:06	JD28614-3	1		
----->	Last reportable sample/prep for job JD28614			
03:11	MA50885-CCV11	1		
03:16	MA50885-CCB11	1		
----->	Last reportable CCB for job JD28614			
03:21	JD28614-4	1		instrument stopped
03:26	JD28614-5	1		instrument stopped
03:31	JD28614-7	1		instrument stopped
03:36	JD28614-8	1		instrument stopped
03:41	JD28614-9	1		instrument stopped
03:46	JD28614-10	1		instrument stopped
03:51	JD28614-11	1		instrument stopped
03:56	JD28614-12	1		instrument stopped
04:01	JD28614-13	1		instrument stopped

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Element: P Dilution b	
17:31	ZZZZZZ	1	
17:36	ZZZZZZ	1	
17:41	MA50885-ICV1	1	X
17:46	MA50885-ICB1	1	X
17:51	MA50885-CCV1	1	X
17:56	MA50885-CCB1	1	X
18:01	MA50885-CRI1	1	X
18:06	MA50885-CRID1	1	X
18:11	MA50885-ICSA1	1	X
18:16	MA50885-ICSAB1	1	X
18:21	MA50885-HSTD1	1	X
18:26	MA50885-HSTD2	1	X
18:31	ZZZZZZ	1	
18:37	ZZZZZZ	1	
18:42	ZZZZZZ	1	
18:47	MA50885-CCV2	1	X
18:52	MA50885-CCB2	1	X
18:57	ZZZZZZ	5	
19:02	ZZZZZZ	5	
19:07	MA50885-HSTD3	1	X
19:12	MA50885-CCV3	1	X
19:17	MA50885-CCB3	1	X
19:22	MP27580-S1	5	X
19:27	MP27580-S2	5	X
19:32	JD28370-6A	5	X (a)
19:37	MP27580-SD1	25	X
19:42	ZZZZZZ	5	
19:48	ZZZZZZ	5	
19:53	ZZZZZZ	5	
19:58	ZZZZZZ	5	
20:03	ZZZZZZ	5	
20:09	MA50885-CCV4	1	X
20:13	MA50885-CCB4	1	X
		Element: P b	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Element: P Dilution b
20:18	ZZZZZZ	5
20:24	ZZZZZZ	5
20:29	ZZZZZZ	5
20:34	ZZZZZZ	5
20:39	ZZZZZZ	5
20:44	ZZZZZZ	5
20:50	ZZZZZZ	5
20:55	MP27581-MB1	5 X
21:00	MP27581-B1	5 X
21:05	MP27581-S1	5 X
21:10	MA50885-CCV5	1 X
21:15	MA50885-CCB5	1 X
21:20	MP27581-S2	5 X
21:25	JD28602-1A	5 X (a)
21:30	MP27581-SD1	25 X
21:35	ZZZZZZ	5
21:41	ZZZZZZ	5
21:46	ZZZZZZ	5
21:51	MP27582-MB1	5 X
21:56	MP27582-B1	5 X
22:01	MP27582-S1	5 X
22:06	MP27582-S2	5 X
22:11	MA50885-CCV6	1 X
22:16	MA50885-CCB6	1 X
22:21	JD28385-50	5 X (a)
22:26	MP27582-SD1	25 X
22:31	ZZZZZZ	5
22:36	ZZZZZZ	5
22:41	ZZZZZZ	5
22:46	MP27583-MB1	5 X
22:51	MP27583-B1	5 X
22:56	MP27583-S1	5 X
23:01	MP27583-S2	5 X
	Element: P b	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 Analyst: ND Run ID: MA50885
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
23:06	JD28385-42	5 X (a)
23:11	MA50885-CCV7	1 X
23:16	MA50885-CCB7	1 X
23:21	MP27583-SD1	25 X
23:26	ZZZZZZ	5
23:32	ZZZZZZ	5
23:37	ZZZZZZ	5
23:42	ZZZZZZ	5
23:47	ZZZZZZ	5
23:52	MP27578-MB1	1 X
23:58	MP27578-B1	1 X
00:02	MP27578-S1	1 X
00:07	MP27578-S2	1 X
00:12	MA50885-CCV8	1 X
00:17	MA50885-CCB8	1 X
00:22	JD28643-11	1 X (a)
00:27	MP27578-SD1	5 X
00:32	ZZZZZZ	1
00:37	ZZZZZZ	1
00:42	ZZZZZZ	1
00:47	ZZZZZZ	1
00:52	ZZZZZZ	1
00:57	ZZZZZZ	1
01:02	ZZZZZZ	1
01:07	ZZZZZZ	1
01:12	MA50885-CCV9	1 X
01:17	MA50885-CCB9	1 X
01:22	ZZZZZZ	1
01:27	ZZZZZZ	1
01:32	ZZZZZZ	1
01:37	ZZZZZZ	1
01:42	ZZZZZZ	1
01:47	ZZZZZZ	1

Element: P
b

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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/23/21 Methods: SW846 6010D
 Run ID: MA50885

Time	Sample Description	Element: P Dilution b
01:51	ZZZZZZ	1
01:56	ZZZZZZ	1
02:01	ZZZZZZ	1
02:06	ZZZZZZ	1
02:11	MA50885-CCV10	1 X
02:16	MA50885-CCB10	1 X
02:21	ZZZZZZ	1
02:26	MP27576-B1	1 X
02:31	MP27576-MB1	1 X
02:36	MP27576-S1	1 X
02:41	MP27576-S2	1 X
02:46	JD28614-6	1 X
02:51	MP27576-SD1	5 X
02:56	JD28614-1	1 X
03:01	JD28614-2	1 X
03:06	JD28614-3	1 X
03:11	MA50885-CCV11	1 X
03:16	MA50885-CCB11	1 X
03:21	JD28614-4	1 instrument stopped
03:26	JD28614-5	1 instrument stopped
03:31	JD28614-7	1 instrument stopped
03:36	JD28614-8	1 instrument stopped
03:41	JD28614-9	1 instrument stopped
03:46	JD28614-10	1 instrument stopped
03:51	JD28614-11	1 instrument stopped
03:56	JD28614-12	1 instrument stopped
04:01	JD28614-13	1 instrument stopped

(a) Sample used for QC only; not part of login JD28614.

Element: P
b

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 Analyst: ND Run ID: MA50885
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:21	MA50885-STD1	3196 R	86341 R	8580 R	8763 R
17:26	MA50885-STD2	3025	82681	8425	7660
17:31	ZZZZZZ	3134	85064	8466	8047
17:36	ZZZZZZ	3223	88231	8582	8836
17:41	MA50885-ICV1	3119	84261	8598	7963
17:46	MA50885-ICB1	3243	87818	8688	8885
17:51	MA50885-CCV1	3157	84247	8583	8035
17:56	MA50885-CCB1	3262	87517	8625	8879
18:01	MA50885-CRI1	3237	86363	8704	8706
18:06	MA50885-CRID1	3246	86469	8614	8793
18:11	MA50885-ICSA1	2957	76774	8297	7158
18:16	MA50885-ICSAB1	2995	77179	8226	7228
18:21	MA50885-HSTD1	3263	85857	8631	8706
18:26	MA50885-HSTD2	3012	77648	8251	7232
18:31	ZZZZZZ	3274	85348	8557	8875
18:37	ZZZZZZ	3273	87085	8662	8984
18:42	ZZZZZZ	3352	87383	8559	9022
18:47	MA50885-CCV2	3237	83353	8444	8127
18:52	MA50885-CCB2	3321	86703	8597	8941
18:57	ZZZZZZ	3236	83554	8607	8319
19:02	ZZZZZZ	3239	83816	8604	8261
19:07	MA50885-HSTD3	3030	77601	8256	7269
19:12	MA50885-CCV3	3260	83828	8468	8173
19:17	MA50885-CCB3	3366	87325	8545	9038
19:22	MP27580-S1	3216	81256	8583	7914
19:27	MP27580-S2	3175	81200	8438	7842
19:32	JD28370-6A	3169	80971	8555	7866
19:37	MP27580-SD1	3283	84651	8558	8500
19:42	ZZZZZZ	3128	80115	8443	7747
19:48	ZZZZZZ	3150	80568	8460	7793
19:53	ZZZZZZ	3151	80596	8481	7813
19:58	ZZZZZZ	3132	80493	8486	7753
20:03	ZZZZZZ	3169	81166	8489	7901

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 Analyst: ND Run ID: MA50885
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:09	MA50885-CCV4	3302	85288	8827	8254
20:13	MA50885-CCB4	3339	87964	8883	8974
20:18	ZZZZZZ	3122	79405	8309	7732
20:24	ZZZZZZ	3078	79827	8187	7641
20:29	ZZZZZZ	3055	79116	8399	7576
20:34	ZZZZZZ	3059	79272	8394	7611
20:39	ZZZZZZ	3071	79746	8499	7654
20:44	ZZZZZZ	3050	79811	8471	7611
20:50	ZZZZZZ	3075	79860	8465	7655
20:55	MP27581-MB1	3118	80458	8534	7826
21:00	MP27581-B1	3157	81248	8528	7834
21:05	MP27581-S1	3078	80119	8440	7634
21:10	MA50885-CCV5	3205	83274	8515	8090
21:15	MA50885-CCB5	3323	86915	8632	8978
21:20	MP27581-S2	3065	79509	8402	7586
21:25	JD28602-1A	3045	79192	8380	7569
21:30	MP27581-SD1	3218	83640	8491	8348
21:35	ZZZZZZ	3126	79685	8540	7781
21:41	ZZZZZZ	3041	77480	7819	7594
21:46	ZZZZZZ	3026	76562	7670	7599
21:51	MP27582-MB1	3196	82959	7825	8641
21:56	MP27582-B1	3172	82757	7823	8431
22:01	MP27582-S1	2975	77507	7675	7601
22:06	MP27582-S2	2964	76941	7581	7564
22:11	MA50885-CCV6	3085	78962	7673	7808
22:16	MA50885-CCB6	3180	82307	7679	8573
22:21	JD28385-50	2910	75836	7444	7501
22:26	MP27582-SD1	3070	79944	7515	8160
22:31	ZZZZZZ	2870	75508	7409	7450
22:36	ZZZZZZ	2969	77396	7561	7729
22:41	ZZZZZZ	2984	78273	7677	7789
22:46	MP27583-MB1	2964	76293	7504	7512
22:51	MP27583-B1	2985	76840	7550	7476

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 Analyst: ND Run ID: MA50885
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:56	MP27583-S1	2913	75478	7456	7287
23:01	MP27583-S2	2916	75375	7415	7300
23:06	JD28385-42	2882	74628	7252	7232
23:11	MA50885-CCV7	3036	78509	7514	7731
23:16	MA50885-CCB7	3158	82029	7664	8570
23:21	MP27583-SD1	3067	79390	7577	7991
23:26	ZZZZZ	2926	75750	7496	7355
23:32	ZZZZZ	2904	74763	7286	7312
23:37	ZZZZZ	2896	75034	7431	7323
23:42	ZZZZZ	2895	74878	7366	7299
23:47	ZZZZZ	2956	76300	7548	7419
23:52	MP27578-MB1	3096	81312	7615	8430
23:58	MP27578-B1	3007	78625	7592	7809
00:02	MP27578-S1	3203	83529	8178	7890
00:07	MP27578-S2	3276	84035	8298	8093
00:12	MA50885-CCV8	3125	80545	7853	7938
00:17	MA50885-CCB8	3174	82816	7666	8606
00:22	JD28643-11	3367	86860	8430	8487
00:27	MP27578-SD1	3270	85056	8011	8614
00:32	ZZZZZ	No results reported for the elements associated with this internal standard.			
00:37	ZZZZZ	3354	85091	8272	8103
00:42	ZZZZZ	3315	83804	8123	8340
00:47	ZZZZZ	3380	85216	8465	8082
00:52	ZZZZZ	3405	87268	8551	8321
00:57	ZZZZZ	3360	86306	8490	8332
01:02	ZZZZZ	3377	86896	8534	8242
01:07	ZZZZZ	3404	86625	8499	8209
01:12	MA50885-CCV9	3115	80358	7806	7906
01:17	MA50885-CCB9	3218	83271	7811	8710
01:22	ZZZZZ	3407	86636	8520	8244
01:27	ZZZZZ	3395	86598	8500	8344
01:32	ZZZZZ	3371	86642	8547	8230
01:37	ZZZZZ	3329	85332	8406	8157

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 Analyst: ND Run ID: MA50885
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
01:42	ZZZZZZ	3365	86068	8472	8268
01:47	ZZZZZZ	3358	86167	8348	8461
01:51	ZZZZZZ	3325	85600	8294	8604
01:56	ZZZZZZ	3458	88656	8689	8341
02:01	ZZZZZZ	3331	85030	8446	8237
02:06	ZZZZZZ	3334	86081	8352	8603
02:11	MA50885-CCV10	3127	80105	7778	7921
02:16	MA50885-CCB10	3237	83788	7903	8746
02:21	ZZZZZZ	3384	87023	8536	8409
02:26	MP27576-B1	3089	79787	7789	7966
02:31	MP27576-MB1	3230	83978	8030	8743
02:36	MP27576-S1	3222	82529	8295	7873
02:41	MP27576-S2	3236	82607	8264	7856
02:46	JD28614-6	3348	85376	8428	8235
02:51	MP27576-SD1	3299	84094	8098	8498
02:56	JD28614-1	3391	85978	8458	8411
03:01	JD28614-2	3373	84749	8314	8367
03:06	JD28614-3	3338	85011	8260	8353
03:11	MA50885-CCV11	3149	80157	7811	7968
03:16	MA50885-CCB11	3268	83642	7891	8808
03:21	JD28614-4	No results reported for the elements associated with this internal standard.			
03:26	JD28614-5	No results reported for the elements associated with this internal standard.			
03:31	JD28614-7	No results reported for the elements associated with this internal standard.			
03:36	JD28614-8	No results reported for the elements associated with this internal standard.			
03:41	JD28614-9	No results reported for the elements associated with this internal standard.			
03:46	JD28614-10	No results reported for the elements associated with this internal standard.			
03:51	JD28614-11	No results reported for the elements associated with this internal standard.			
03:56	JD28614-12	No results reported for the elements associated with this internal standard.			
04:01	JD28614-13	No results reported for the elements associated with this internal standard.			

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Metal	RL	IDL	17:46		17:56		18:52		19:17	
			ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.500	<20	0.400	<20	1.50	<20	0.200	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

6.1.3
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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:	17:46	17:56	18:52	19:17						
Sample ID:	ICB1	CCB1	CCB2	CCB3						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 20 .4

(*) Outside of QC limits
(anr) Analyte not requested



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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Metal	Time:		20:13		21:15		22:16		23:16		
	Sample ID:	RL	IDL	CCB4	final	CCB5	final	CCB6	final	CCB7	final
Aluminum	500	16									
Antimony	20	2.5									
Arsenic	20	2	anr								
Barium	200	.4	anr								
Beryllium	2.0	.1									
Bismuth	20	3.6									
Boron	100	1.9									
Cadmium	5.0	.4	anr								
Calcium	5000	5.6									
Chromium	10	.5	anr								
Cobalt	50	.5									
Copper	25	1									
Iron	500	11									
Lead	20	1.2	0.400	<20	0.400	<20	0.100	<20	-0.300	<20	
Lithium	50	2.3									
Magnesium	5000	65									
Manganese	15	.2									
Molybdenum	20	.4									
Nickel	40	.3	anr								
Phosphorus	200	4.1									
Potassium	10000	55									
Selenium	20	3.5	anr								
Silicon	200	1.6									
Silver	5.0	1.1	anr								
Sodium	10000	11									
Strontium	50	.1									
Sulfur	100	4.4									
Thallium	10	2.5									
Tin	200	1									
Titanium	10	.4									
Tungsten	50	2.8									
Vanadium	50	.6									
Zinc	50	.1									

6.1.3
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BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

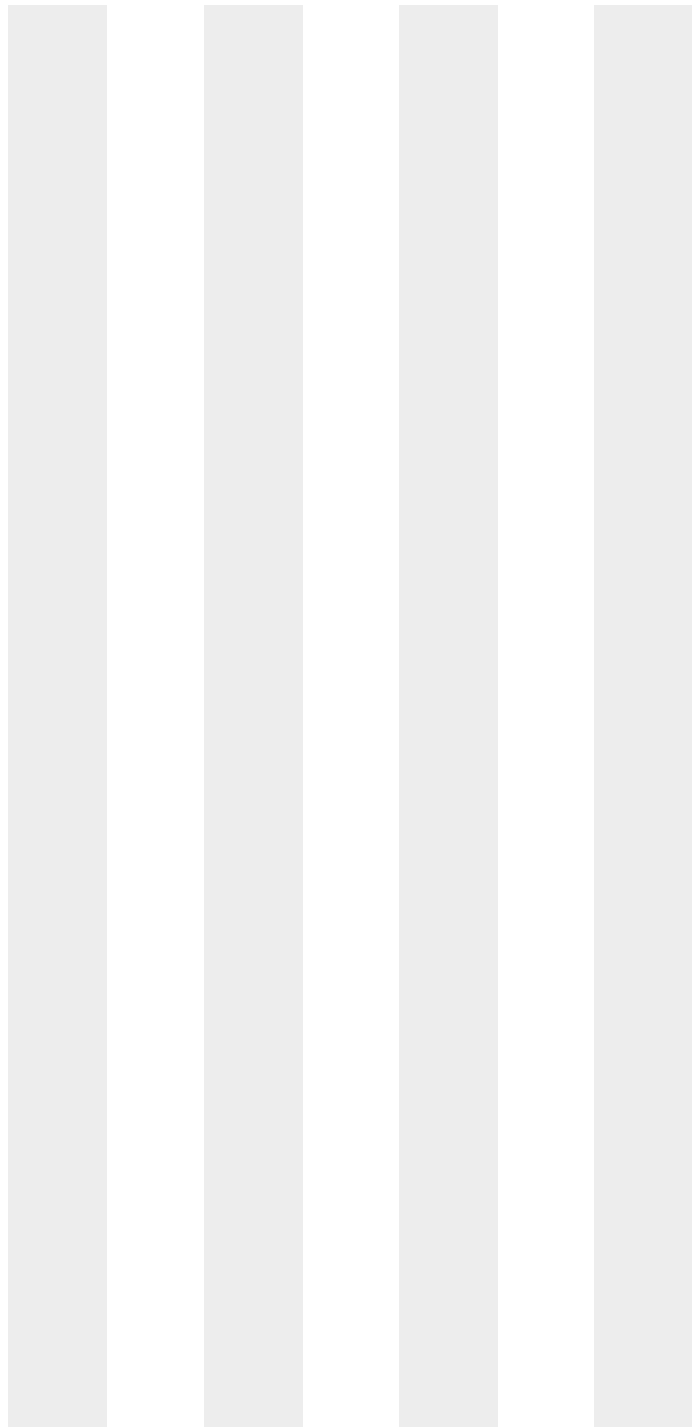
Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			20:13		21:15		22:16		23:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 20 .4

(*) Outside of QC limits
 (anr) Analyte not requested



6.1.3
 6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Metal	Time:		00:17		01:17		02:16		03:16		
	Sample ID:	RL	IDL	CCB8	final	CCB9	final	CCB10	final	CCB11	final
Aluminum	500	16									
Antimony	20	2.5									
Arsenic	20	2	anr								
Barium	200	.4	anr								
Beryllium	2.0	.1									
Bismuth	20	3.6									
Boron	100	1.9									
Cadmium	5.0	.4	anr								
Calcium	5000	5.6									
Chromium	10	.5	anr								
Cobalt	50	.5									
Copper	25	1									
Iron	500	11									
Lead	20	1.2	0.100	<20	-0.200	<20	0.100	<20	0.300	<20	
Lithium	50	2.3									
Magnesium	5000	65									
Manganese	15	.2									
Molybdenum	20	.4									
Nickel	40	.3	anr								
Phosphorus	200	4.1									
Potassium	10000	55									
Selenium	20	3.5	anr								
Silicon	200	1.6									
Silver	5.0	1.1	anr								
Sodium	10000	11									
Strontium	50	.1									
Sulfur	100	4.4									
Thallium	10	2.5									
Tin	200	1									
Titanium	10	.4									
Tungsten	50	2.8									
Vanadium	50	.6									
Zinc	50	.1									

6.1.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:	00:17	01:17	02:16	03:16						
Sample ID:	CCB8	CCB9	CCB10	CCB11						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 20 .4

(*) Outside of QC limits
 (anr) Analyte not requested



6.1.3
 6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:	17:41	17:51	18:47						
Sample ID:	ICV	ICV1	CCV	CCV1	CCV	CCV2			
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2030	101.5	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:	17:41	17:51	18:47
Sample ID:	ICV	ICV1	CCV
Metal	True	Results % Rec	True

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Metal	Sample ID: CCV	19:12		CCV	20:09		CCV	21:10	
		CCV3	Results % Rec		CCV4	Results % Rec		CCV5	Results % Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2060	103.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:	19:12	20:09	21:10
Sample ID:	CCV3	CCV4	CCV5
Metal	Results % Rec	Results % Rec	Results % Rec

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested



6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Metal	Time:	22:11			23:11			00:12		
	Sample ID:	CCV	CCV6	% Rec	CCV	CCV7	% Rec	CCV	CCV8	% Rec
Aluminum										
Antimony										
Arsenic	anr									
Barium	anr									
Beryllium										
Bismuth										
Boron										
Cadmium	anr									
Calcium										
Chromium	anr									
Cobalt										
Copper										
Iron										
Lead	2000	2160	108.0		2000	2140	107.0	2000	2080	104.0
Lithium										
Magnesium										
Manganese										
Molybdenum										
Nickel	anr									
Phosphorus										
Potassium										
Selenium	anr									
Silicon										
Silver	anr									
Sodium										
Strontium										
Sulfur										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

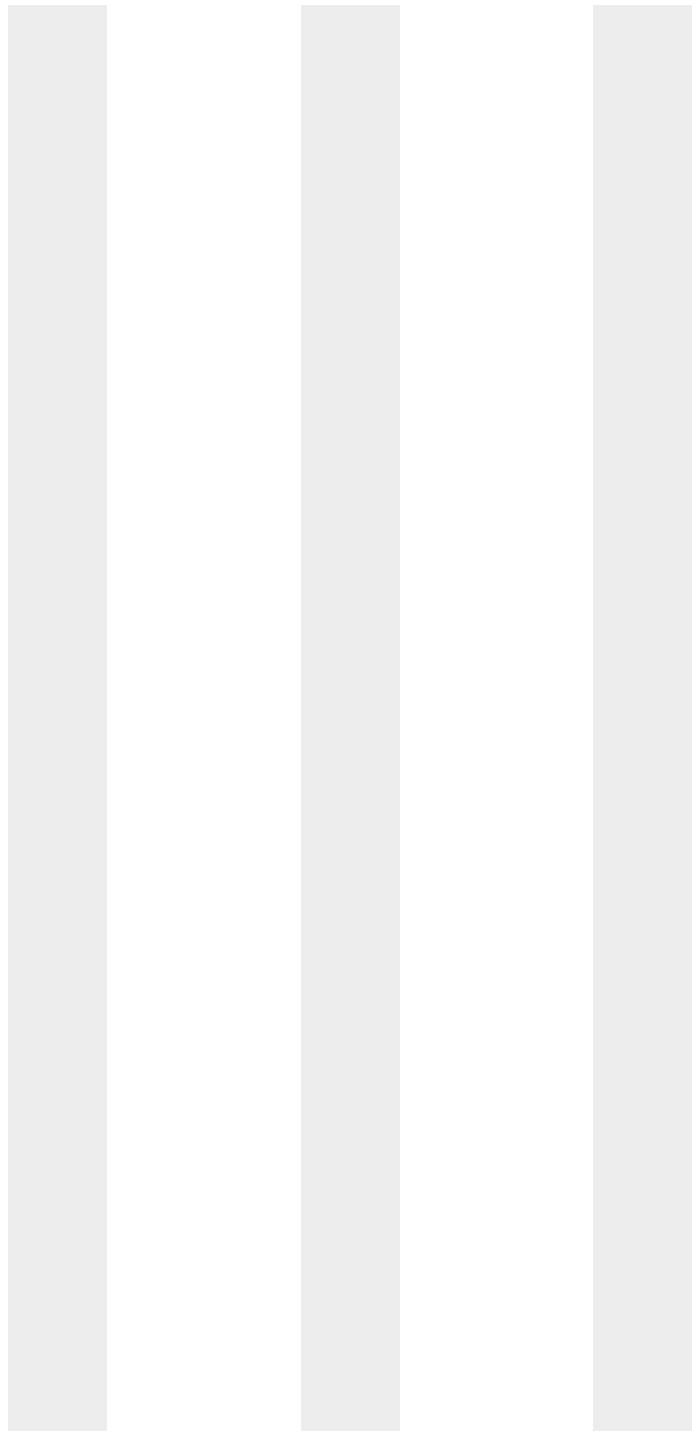
Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:	22:11	23:11	00:12
Sample ID:	CCV6	CCV7	CCV8
Metal	True	True	True
	Results % Rec	Results % Rec	Results % Rec

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested



6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Metal	Sample ID: CCV	01:12		CCV	02:11		CCV	03:11	
		CCV9	Results % Rec		CCV10	Results % Rec		CCV11	Results % Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2090	104.5	2000	2080	104.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

	Time:	01:12		02:11		03:11
Sample ID:	CCV	CCV9	CCV	CCV10	CCV	CCV11
Metal	True	Results % Rec	True	Results % Rec	True	Results % Rec

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested



6.1.4
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50885 Units: ug/l

Metal	Time:	18:21		18:26		19:07			
	Sample ID:	HSTD	HSTD1	HSTD	HSTD2	HSTD	HSTD3		
	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	8000	8170	102.1						
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.5
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50885 Units: ug/l

Time:	18:21	18:26	19:07
Sample ID:	HSTD HSTD1	HSTD HSTD2	HSTD HSTD3
Metal	True Results % Rec	True Results % Rec	True Results % Rec

Zirconium

(*) Outside of QC limits
 (anr) Analyte not requested



6.1.5
 6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50885 Units: ug/l

Time:	18:01	18:06		
Sample ID:	CRI1	CRID1		
Metal	True	True	True	% Rec
Aluminum	200	500	100	
Antimony	6.0	20	3.0	
Arsenic	8.0	20	3.0	anr
Barium	200		4.0	anr
Beryllium	2.0		1.0	
Bismuth	20			
Boron	100		10	
Cadmium	3.0		1.0	anr
Calcium	5000	2000	1000	
Chromium	10		2.0	anr
Cobalt	50		3.0	
Copper	10		2.0	
Iron	100	500		
Lead	3.0	20	2.5	3.00 100.0
Lithium	50			
Magnesium	5000	2000	100	
Manganese	15		3.0	
Molybdenum	20			
Nickel	10		4.0	anr
Phosphorus	50			
Potassium	5000		2000	
Selenium	10	20	5.0	anr
Silicon	200			
Silver	5.0		2.0	anr
Sodium	5000		1000	
Strontium	10			
Sulfur	50			
Thallium	10		2.0	
Tin	10			
Titanium	10			
Tungsten	50			
Vanadium	50		2.0	
Zinc	20		10	

6.1.6
6



LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50885 Units: ug/l

Time:		18:01		18:06	
Sample ID:	CRI	CRIA	CRID	CRI1	CRID1
Metal	True	True	True	Results % Rec	Results % Rec

Zirconium 10

(*) Outside of QC limits
 (anr) Analyte not requested

6.1.6
 6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50885 Units: ug/l

Time:			18:11			18:16
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec
Metal	True	True	Results		Results	% Rec
Aluminum	500000	500000	501000	100.2	488000	97.6
Antimony		1000	-3.20		973	97.3
Arsenic		1000	0.700		972	97.2
Barium		500	1.30		487	97.4
Beryllium		500	0.200		489	97.8
Bismuth		500	7.10		489	97.8
Boron		500	-4.00		471	94.2
Cadmium		1000	0.00		1010	101.0
Calcium	400000	400000	382000	95.5	372000	93.0
Chromium		500	-3.80		478	95.6
Cobalt		500	-0.100		491	98.2
Copper		500	5.40		506	101.2
Iron	200000	200000	200000	100.0	191000	95.5
Lead		1000	-0.800		999	99.9
Lithium		500	-15.4		488	97.6
Magnesium	500000	500000	489000	97.8	482000	96.4
Manganese		500	0.500		520	104.0
Molybdenum		500	-1.50		451	90.2
Nickel		1000	-0.900		975	97.5
Phosphorus		500	18.9		443	88.6
Potassium			167		180	
Selenium		1000	-5.30		901	90.1
Silicon		500	-4.40		500	100.0
Silver		1000	-1.10		1000	100.0
Sodium			-22.3		43.6	
Strontium		500	0.700		470	94.0
Sulfur		500	23.7		479	95.8
Thallium		1000	-4.40		1030	103.0
Tin		500	-3.20		473	94.6
Titanium		500	-1.10		490	98.0
Tungsten		500	8.20		472	94.4
Vanadium		500	-0.400		499	99.8
Zinc		1000	2.00		995	99.5

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50885 Units: ug/l

Time:		18:11		18:16		
Sample ID:	ICSAB	ICSAB	ICSAB1	ICSAB1	ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec

Zirconium		500	0.100		455	91.0
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(*) Outside of QC limits
(anr) Analyte not requested

6.1.7
6

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50891

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:30	MA50891-STD1	1		STDA
11:35	MA50891-STD2	1		STDB
11:40	ZZZZZZ	1		
11:45	ZZZZZZ	1		
11:50	MA50891-ICV1	1		
12:02	MA50891-ICB1	1		
12:09	MA50891-ICCV1	1		
12:22	MA50891-CCB1	1		
12:42	MA50891-CRI1	1		
12:47	MA50891-CRID1	1		
13:03	ZZZZZZ	1		
13:09	ZZZZZZ	1		
13:14	MA50891-ICSA1	1		
13:19	MA50891-ICSAB1	1		
13:24	MA50891-HSTD1	1		
13:29	MA50891-HSTD2	1		
13:34	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:45	MA50891-CCV1	1		
13:50	MA50891-CCB2	1		
13:55	MP27569-MB1	1		
14:00	MP27569-B1	1		
14:05	MP27569-S1	1		Mg high
14:10	MP27569-S2	1		Mg high
14:15	JD28454-12	1		(sample used for QC only; not part of login JD28614)
14:20	MP27569-SD1	5		Mg high
14:25	ZZZZZZ	1		
14:30	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:40	MA50891-CCV2	1		
14:45	MA50891-CCB3	1		
14:51	ZZZZZZ	1		
14:56	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:01	ZZZZZZ	1		
15:06	ZZZZZZ	1		
15:11	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:21	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:36	MA50891-CCV3	1		
15:41	MA50891-CCB4	1		
15:47	ZZZZZZ	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	ZZZZZZ	1		
16:07	ZZZZZZ	1		
16:12	ZZZZZZ	1		
16:17	ZZZZZZ	1		
16:22	ZZZZZZ	1		
16:28	ZZZZZZ	1		
16:33	MA50891-CCV4	1		
16:38	MA50891-CCB5	1		
16:43	ZZZZZZ	5		
16:48	ZZZZZZ	1		
16:53	ZZZZZZ	1		
16:58	JD28614-4	1		
17:03	JD28614-5	1		
17:08	JD28614-7	1		
17:13	JD28614-8	1		
17:18	JD28614-9	1		
17:23	JD28614-10	1		
17:28	MA50891-CCV5	1		
17:33	MA50891-CCB6	1		
17:38	JD28614-11	1		
17:43	JD28614-12	1		FE high

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:49	JD28614-13	1		
17:53	JD28614-14	1		
17:58	JD28614-17	1		
----->	Last reportable sample/prep for job JD28614			
18:03	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:23	MA50891-CCV6	1		
18:28	MA50891-CCB7	1		
----->	Last reportable CCB for job JD28614			
18:34	ZZZZZZ	1		
18:39	MP27589-B1	1		
18:44	MP27589-S1	1		
18:48	MP27589-S2	1		
18:53	JD27825-1R	1		(sample used for QC only; not part of login JD28614)
18:58	MP27589-SD1	5		
19:04	MP27592-MB1	1		
19:09	MP27592-B1	1		
19:14	MP27592-S1	1		
19:19	MP27592-S2	1		
19:23	MA50891-CCV7	1		
19:28	MA50891-CCB8	1		
19:33	JD28584-1	1		(sample used for QC only; not part of login JD28614)
19:39	MP27592-SD1	5		
19:44	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
20:00	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	MA50891-CCV8	1		
20:31	MA50891-CCB9	1		

6.2
6

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:36	ZZZZZZ	1		
20:42	ZZZZZZ	1		
20:47	ZZZZZZ	1		
20:52	ZZZZZZ	1		
20:58	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:08	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:18	ZZZZZZ	1		
21:23	ZZZZZZ	1		
21:28	MA50891-CCV9	1		
21:33	MA50891-CCB10	1		
21:39	MP27662-MB1	1		
21:44	MP27662-B1	1		
21:49	MP27662-S1	1		
21:54	MP27662-S2	1		high rsd
21:59	JD28714-4	1		(sample used for QC only; not part of login JD28614)
22:04	MP27662-SD1	5		
22:09	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:25	MA50891-CCV10	1		
22:29	MA50891-CCB11	1		
22:35	ZZZZZZ	1		
22:40	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:11	MP27589-MB1	1		
23:16	ZZZZZZ	1		
23:21	MA50891-CCV11	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:26	MA50891-CCB12	1		
23:31	ZZZZZZ	1		
23:37	ZZZZZZ	1		
23:42	ZZZZZZ	1		
23:47	ZZZZZZ	1		
23:53	ZZZZZZ	1		
23:58	ZZZZZZ	1		
00:03	MA50891-CCV12	1		
00:08	MA50891-CCB13	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
11:40	ZZZZZZ	1
11:45	ZZZZZZ	1
11:50	MA50891-ICV1	1 X
12:02	MA50891-ICB1	1 X
12:09	MA50891-ICCV1	1 X
12:22	MA50891-CCB1	1 X
12:42	MA50891-CRI1	1 X
12:47	MA50891-CRID1	1 X
13:03	ZZZZZZ	1
13:09	ZZZZZZ	1
13:14	MA50891-ICSA1	1 X
13:19	MA50891-ICSAB1	1 X
13:24	MA50891-HSTD1	1 X
13:29	MA50891-HSTD2	1 X
13:34	ZZZZZZ	1
13:39	ZZZZZZ	1
13:45	MA50891-CCV1	1 X
13:50	MA50891-CCB2	1 X
13:55	MP27569-MB1	1 X
14:00	MP27569-B1	1 X
14:05	MP27569-S1	1 Mg high
14:10	MP27569-S2	1 Mg high
14:15	JD28454-12	1 Mg high
14:20	MP27569-SD1	5 Mg high
14:25	ZZZZZZ	1
14:30	ZZZZZZ	1
14:35	ZZZZZZ	1
14:40	MA50891-CCV2	1 X
14:45	MA50891-CCB3	1 X
14:51	ZZZZZZ	1
14:56	ZZZZZZ	1
15:01	ZZZZZZ	1
15:06	ZZZZZZ	1

Element: P
b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
15:11	ZZZZZZ	1
15:16	ZZZZZZ	1
15:21	ZZZZZZ	1
15:26	ZZZZZZ	1
15:31	ZZZZZZ	1
15:36	MA50891-CCV3	1 X
15:41	MA50891-CCB4	1 X
15:47	ZZZZZZ	1
15:52	ZZZZZZ	1
15:57	ZZZZZZ	1
16:02	ZZZZZZ	1
16:07	ZZZZZZ	1
16:12	ZZZZZZ	1
16:17	ZZZZZZ	1
16:22	ZZZZZZ	1
16:28	ZZZZZZ	1
16:33	MA50891-CCV4	1 X
16:38	MA50891-CCB5	1 X
16:43	ZZZZZZ	5
16:48	ZZZZZZ	1
16:53	ZZZZZZ	1
16:58	JD28614-4	1 X
17:03	JD28614-5	1 X
17:08	JD28614-7	1 X
17:13	JD28614-8	1 X
17:18	JD28614-9	1 X
17:23	JD28614-10	1 X
17:28	MA50891-CCV5	1 X
17:33	MA50891-CCB6	1 X
17:38	JD28614-11	1 X
17:43	JD28614-12	1
17:49	JD28614-13	1 X
17:53	JD28614-14	1 X
		Element: P b

6.2.1
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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
17:58	JD28614-17	1 X
18:03	ZZZZZZ	1
18:08	ZZZZZZ	1
18:13	ZZZZZZ	1
18:18	ZZZZZZ	1
18:23	MA50891-CCV6	1 X
18:28	MA50891-CCB7	1 X
18:34	ZZZZZZ	1
18:39	MP27589-B1	1
18:44	MP27589-S1	1
18:48	MP27589-S2	1
18:53	JD27825-1R	1 (a)
18:58	MP27589-SD1	5
19:04	MP27592-MB1	1 X
19:09	MP27592-B1	1 X
19:14	MP27592-S1	1
19:19	MP27592-S2	1
19:23	MA50891-CCV7	1 X
19:28	MA50891-CCB8	1 X
19:33	JD28584-1	1 (a)
19:39	MP27592-SD1	5
19:44	ZZZZZZ	1
19:49	ZZZZZZ	1
19:54	ZZZZZZ	1
20:00	ZZZZZZ	1
20:05	ZZZZZZ	1
20:10	ZZZZZZ	1
20:16	ZZZZZZ	1
20:21	ZZZZZZ	1
20:26	MA50891-CCV8	1 X
20:31	MA50891-CCB9	1 X
20:36	ZZZZZZ	1
20:42	ZZZZZZ	1

Element: P
b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
20:47	ZZZZZZ	1
20:52	ZZZZZZ	1
20:58	ZZZZZZ	1
21:03	ZZZZZZ	1
21:08	ZZZZZZ	1
21:13	ZZZZZZ	1
21:18	ZZZZZZ	1
21:23	ZZZZZZ	1
21:28	MA50891-CCV9	1 X
21:33	MA50891-CCB10	1 X
21:39	MP27662-MB1	1
21:44	MP27662-B1	1
21:49	MP27662-S1	1
21:54	MP27662-S2	1
21:59	JD28714-4	1 (a)
22:04	MP27662-SD1	5
22:09	ZZZZZZ	1
22:14	ZZZZZZ	1
22:19	ZZZZZZ	1
22:25	MA50891-CCV10	1 X
22:29	MA50891-CCB11	1 X
22:35	ZZZZZZ	1
22:40	ZZZZZZ	1
22:45	ZZZZZZ	1
22:50	ZZZZZZ	1
22:55	ZZZZZZ	1
23:00	ZZZZZZ	1
23:05	ZZZZZZ	1
23:11	MP27589-MB1	1
23:16	ZZZZZZ	1
23:21	MA50891-CCV11	1 X
23:26	MA50891-CCB12	1 X
23:31	ZZZZZZ	1

Element: P
b

6.2.1
6

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
------	--------------------	--------------------------

23:37	ZZZZZZ	1
23:42	ZZZZZZ	1
23:47	ZZZZZZ	1
23:53	ZZZZZZ	1
23:58	ZZZZZZ	1
00:03	MA50891-CCV12	1 X
00:08	MA50891-CCB13	1 X

(a) Sample used for QC only; not part of login JD28614.

Element: P
b

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:30	MA50891-STD1	1772 R	56545 R	2111 R	5756 R
11:35	MA50891-STD2	1679	53298	2055	5441
11:40	ZZZZZZ	1739	55341	2130	5571
11:45	ZZZZZZ	1763	56508	2122	5719
11:50	MA50891-ICV1	1723	55031	2105	5533
12:02	MA50891-ICB1	1787	57433	2136	5784
12:09	MA50891-ICCV1	1706	55387	2112	5482
12:22	MA50891-CCB1	1767	56406	2096	5730
12:42	MA50891-CRI1	1773	56803	2117	5718
12:47	MA50891-CRID1	1766	56594	2111	5716
13:03	ZZZZZZ	1760	56650	2096	5676
13:09	ZZZZZZ	1745	56440	2094	5629
13:14	MA50891-ICSA1	1571	50959	2013	5123
13:19	MA50891-ICSAB1	1579	51179	2017	5155
13:24	MA50891-HSTD1	1744	55876	2122	5765
13:29	MA50891-HSTD2	1626	53109	2028	5215
13:34	ZZZZZZ	1750	56674	2087	5839
13:39	ZZZZZZ	1711	56184	2080	5700
13:45	MA50891-CCV1	1732	55561	2073	5533
13:50	MA50891-CCB2	1770	56866	2091	5719
13:55	MP27569-MB1	1796	57110	2125	5796
14:00	MP27569-B1	1740	55765	2107	5582
14:05	MP27569-S1	No results reported for the elements associated with this internal standard.			
14:10	MP27569-S2	No results reported for the elements associated with this internal standard.			
14:15	JD28454-12	No results reported for the elements associated with this internal standard.			
14:20	MP27569-SD1	No results reported for the elements associated with this internal standard.			
14:25	ZZZZZZ	1897	59425	2212	5864
14:30	ZZZZZZ	1947	61087	2277	5819
14:35	ZZZZZZ	1846	57897	2179	5721
14:40	MA50891-CCV2	1725	54867	2024	5500
14:45	MA50891-CCB3	1773	56440	2038	5697
14:51	ZZZZZZ	1866	58631	2218	5761
14:56	ZZZZZZ	1631	54148	2046	4909

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:01	ZZZZZ	1572	52768	1994	4824
15:06	ZZZZZ	No results reported for the elements associated with this internal standard.			
15:11	ZZZZZ	1662	54951	2046	4954
15:16	ZZZZZ	No results reported for the elements associated with this internal standard.			
15:21	ZZZZZ	No results reported for the elements associated with this internal standard.			
15:26	ZZZZZ	1588	52336	1968	4818
15:31	ZZZZZ	1612	54243	2001	4856
15:36	MA50891-CCV3	1728	54695	1931	5497
15:41	MA50891-CCB4	1783	56456	1963	5734
15:47	ZZZZZ	No results reported for the elements associated with this internal standard.			
15:52	ZZZZZ	1578	52988	1930	4799
15:57	ZZZZZ	1732	57440	2083	4994
16:02	ZZZZZ	No results reported for the elements associated with this internal standard.			
16:07	ZZZZZ	No results reported for the elements associated with this internal standard.			
16:12	ZZZZZ	1856	57563	2063	5751
16:17	ZZZZZ	1588	53382	1895	4903
16:22	ZZZZZ	1785	56209	1903	5794
16:28	ZZZZZ	1749	55570	1892	5643
16:33	MA50891-CCV4	1728	54719	1894	5520
16:38	MA50891-CCB5	1783	56259	1915	5763
16:43	ZZZZZ	1744	56167	1935	5616
16:48	ZZZZZ	1758	56111	1917	5665
16:53	ZZZZZ	1707	54612	1905	5482
16:58	JD28614-4	1815	58521	2060	5653
17:03	JD28614-5	1878	59067	2083	5715
17:08	JD28614-7	1838	58437	2066	5635
17:13	JD28614-8	1887	60558	2116	5654
17:18	JD28614-9	1828	58886	2049	5622
17:23	JD28614-10	1811	57931	2032	5608
17:28	MA50891-CCV5	1726	54933	1894	5504
17:33	MA50891-CCB6	1756	55594	1862	5667
17:38	JD28614-11	1810	57852	2001	5732
17:43	JD28614-12	1910	60863	2097	5795

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:49	JD28614-13	1853	58025	2014	5893
17:53	JD28614-14	1901	60345	2102	5705
17:58	JD28614-17	1800	57591	2013	5556
18:03	ZZZZZZ	1914	60727	2109	5687
18:08	ZZZZZZ	1871	59127	2037	5768
18:13	ZZZZZZ	1933	61050	2133	5755
18:18	ZZZZZZ	1886	59451	2055	5653
18:23	MA50891-CCV6	1713	54572	1869	5472
18:28	MA50891-CCB7	1773	56681	1874	5718
18:34	ZZZZZZ	1764	55813	1891	5686
18:39	MP27589-B1	1725	54597	1874	5525
18:44	MP27589-S1	1715	55084	1891	5484
18:48	MP27589-S2	1709	54672	1892	5469
18:53	JD27825-1R	1741	55538	1884	5586
18:58	MP27589-SD1	1795	56831	1872	5797
19:04	MP27592-MB1	1785	56206	1904	5805
19:09	MP27592-B1	1713	53707	1877	5523
19:14	MP27592-S1	1675	53818	1862	5331
19:19	MP27592-S2	1665	53452	1862	5306
19:23	MA50891-CCV7	1718	54261	1868	5497
19:28	MA50891-CCB8	1778	56141	1902	5747
19:33	JD28584-1	1689	54694	1864	5357
19:39	MP27592-SD1	1751	55911	1879	5621
19:44	ZZZZZZ	1422	47278	1774	4262
19:49	ZZZZZZ	1392	46926	1758	4183
19:54	ZZZZZZ	1350	46258	1747	4064
20:00	ZZZZZZ	1346	45791	1731	4041
20:05	ZZZZZZ	1602	52310	1836	4913
20:10	ZZZZZZ	1580	51444	1834	4838
20:16	ZZZZZZ	1327	44305	1723	3921 !a
20:21	ZZZZZZ	1383	46449	1753	4086
20:26	MA50891-CCV8	1722	54837	1852	5520
20:31	MA50891-CCB9	1782	55385	1879	5778

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:36	ZZZZZZ	1441	47877	1767	4345
20:42	ZZZZZZ	1474	48592	1754	4460
20:47	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:52	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:58	ZZZZZZ	1694	55115	1863	5439
21:03	ZZZZZZ	1715	54564	1855	5478
21:08	ZZZZZZ	1723	54369	1818	5506
21:13	ZZZZZZ	1708	54021	1827	5471
21:18	ZZZZZZ	1670	54429	1821	5356
21:23	ZZZZZZ	1714	54286	1848	5470
21:28	MA50891-CCV9	1725	53825	1845	5587
21:33	MA50891-CCB10	1772	54938	1847	5764
21:39	MP27662-MB1	1764	56255	1843	5761
21:44	MP27662-B1	1711	54008	1846	5540
21:49	MP27662-S1	1674	53360	1824	5374
21:54	MP27662-S2	1786	54335	1824	5684
21:59	JD28714-4	1818	60119	2099	5792
22:04	MP27662-SD1	1859	60806	2115	5983
22:09	ZZZZZZ	1840	59685	2116	5844
22:14	ZZZZZZ	1853	59782	2133	5944
22:19	ZZZZZZ	1843	60092	2122	5899
22:25	MA50891-CCV10	1815	58208	2083	5809
22:29	MA50891-CCB11	1870	59995	2096	6048
22:35	ZZZZZZ	1819	59834	2086	5824
22:40	ZZZZZZ	1842	59817	2121	5897
22:45	ZZZZZZ	1834	59468	2101	5897
22:50	ZZZZZZ	1813	59846	2091	5833
22:55	ZZZZZZ	1847	59827	2132	5927
23:00	ZZZZZZ	1818	58709	2109	5790
23:05	ZZZZZZ	1873	60710	2107	6074
23:11	MP27589-MB1	1864	60326	2103	6039
23:16	ZZZZZZ	1850	59104	2099	5998
23:21	MA50891-CCV11	1795	58021	2066	5743

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50891
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:26	MA50891-CCB12	1826	59699	2065	5928
23:31	ZZZZZZ	1862	59462	2086	6019
23:37	ZZZZZZ	1703	57739	2047	5432
23:42	ZZZZZZ	1825	58700	2041	5943
23:47	ZZZZZZ	1844	55406	2165	5697
23:53	ZZZZZZ	1823	58691	2079	5973
23:58	ZZZZZZ	1829	58277	2083	5961
00:03	MA50891-CCV12	1752	56769	2035	5681
00:08	MA50891-CCB13	1793	57801	2085	5895

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

6.2.2
6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Metal	Time:		12:02		12:22		13:50		14:45		
	Sample ID:	RL	IDL	ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	200	9.2									
Antimony	6.0	2.8									
Arsenic	3.0	2.6		anr							
Barium	200	.2		anr							
Beryllium	1.0	.2									
Bismuth	20	2.5									
Boron	100	1.8									
Cadmium	3.0	.4		anr							
Calcium	5000	13		anr							
Cerium	100										
Chromium	10	.7		anr							
Cobalt	50	.6									
Copper	10	.7									
Iron	100	3.3		anr							
Lead	3.0	2		0.300	<3.0	0.600	<3.0	0.200	<3.0	2.60	<3.0
Lithium	50	1.5									
Magnesium	5000	25		anr							
Manganese	15	.1		anr							
Molybdenum	20	.6									
Nickel	10	.8		anr							
Phosphorus	50	7									
Potassium	10000	35		anr							
Selenium	10	3.6		anr							
Silicon	200	2.2									
Silver	10	.6		anr							
Sodium	10000	14		anr							
Strontium	10	.1									
Sulfur	50	3.7									
Thallium	10	5.2									
Tin	10	1.4									
Titanium	10	.8									
Tungsten	50	1.3									
Vanadium	50	.5									

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			12:02		12:22		13:50		14:45	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								
(*) Outside of QC limits										
(anr) Analyte not requested										

6.2.3
 6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			15:41			16:38			17:33			18:28
Sample ID:	RL	IDL	CCB4	final	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2										
Antimony	6.0	2.8										
Arsenic	3.0	2.6	anr									
Barium	200	.2	anr									
Beryllium	1.0	.2										
Bismuth	20	2.5										
Boron	100	1.8										
Cadmium	3.0	.4	anr									
Calcium	5000	13	anr									
Cerium	100											
Chromium	10	.7	anr									
Cobalt	50	.6										
Copper	10	.7										
Iron	100	3.3	anr									
Lead	3.0	2	1.40	<3.0	1.10	<3.0	2.10	<3.0	0.500	<3.0		
Lithium	50	1.5										
Magnesium	5000	25	anr									
Manganese	15	.1	anr									
Molybdenum	20	.6										
Nickel	10	.8	anr									
Phosphorus	50	7										
Potassium	10000	35	anr									
Selenium	10	3.6	anr									
Silicon	200	2.2										
Silver	10	.6	anr									
Sodium	10000	14	anr									
Strontium	10	.1										
Sulfur	50	3.7										
Thallium	10	5.2										
Tin	10	1.4										
Titanium	10	.8										
Tungsten	50	1.3										
Vanadium	50	.5										

6.2.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:	15:41	16:38	17:33	18:28						
Sample ID:	CCB4	CCB5	CCB6	CCB7						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
 (anr) Analyte not requested

6.2.3
 6

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA50891 Units: ug/l

Time:	12:09
Sample ID: ICCV	ICCV1
Metal	True
Results	% Rec

Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2080	104.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

6.2.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA50891 Units: ug/l

Time:	12:09
Sample ID: ICCV	ICCV1
Metal	True
Results	% Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.2.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Metal	Time:	11:50			13:45			14:40		
	Sample ID:	ICV	ICV1	CCV	CCV1	CCV	CCV2	Results	% Rec	
Aluminum	True									
Antimony										
Arsenic	anr									
Barium	anr									
Beryllium										
Bismuth										
Boron										
Cadmium	anr									
Calcium	anr									
Cerium										
Chromium	anr									
Cobalt										
Copper										
Iron	anr									
Lead	2000	2100	105.0	2000	2060	103.0	2000	2080	104.0	
Lithium										
Magnesium	anr									
Manganese	anr									
Molybdenum										
Nickel	anr									
Phosphorus										
Potassium	anr									
Selenium	anr									
Silicon										
Silver	anr									
Sodium	anr									
Strontium										
Sulfur										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										

6.2.5
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:	11:50	13:45	14:40
Sample ID:	ICV	CCV	CCV
Metal	ICV1	CCV1	CCV2
	Results % Rec	Results % Rec	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.2.5
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Metal	Time:	15:36		16:33		17:28			
	Sample ID:	CCV	CCV3	CCV	CCV4	CCV	CCV5		
	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	2000	2110	105.5	2000	2080	104.0	2000	2090	104.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.2.5
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

	Time:	15:36		16:33		17:28	
Sample ID:	CCV	CCV3	CCV	CCV4	CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.2.5
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:	18:23
Sample ID: CCV	CCV6
Metal	True
Results	% Rec

Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2120	106.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

6.2.5
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:	18:23
Sample ID: CCV	CCV6
Metal	True
Results	% Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.2.5

6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50891 Units: ug/l

Metal	Time: 13:24		13:29			
	Sample ID: HSTD	HSTD1	HSTD	HSTD2		
	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper						
Iron						
Lead	8000	8260	103.3			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

6.2.6
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50891 Units: ug/l

Time:		13:24		13:29	
Sample ID:	HSTD	HSTD1	HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.2.6
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50891 Units: ug/l

Time:	12:42	12:47		
Sample ID:	CRI1	CRID1	Results	% Rec
Metal	True	True	Results	% Rec
Aluminum	200	500	100	
Antimony	6.0	20	3.0	
Arsenic	8.0	20	3.0	anr
Barium	200		4.0	anr
Beryllium	2.0		1.0	
Bismuth	20			
Boron	100		10	
Cadmium	3.0		1.0	anr
Calcium	5000	2000	1000	anr
Cerium				
Chromium	10		2.0	anr
Cobalt	50		3.0	
Copper	10		2.0	
Iron	100	500		anr
Lead	3.0	20	2.5	3.20 106.7
Lithium	50			
Magnesium	5000	2000	100	anr
Manganese	15		3.0	anr
Molybdenum	20			
Nickel	10		4.0	anr
Phosphorus	50			
Potassium	5000		2000	anr
Selenium	10	20	5.0	anr
Silicon	200			
Silver	5.0		2.0	anr
Sodium	5000		1000	anr
Strontium	10			
Sulfur	50			
Thallium	10		2.0	
Tin	10			
Titanium	10			
Tungsten	50			
Vanadium	50		2.0	

6.2.7
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50891 Units: ug/l

Time:				12:42			12:47
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec

Zinc 20 10 anr

Zirconium 10

(*) Outside of QC limits
 (anr) Analyte not requested

6.2.7
 6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50891 Units: ug/l

Metal	Time:		13:14		13:19	
	Sample ID:	ICSA	ICSAB	ICSAL	ICSAB1	ICSAB1
	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	522000	104.4	511000	102.2
Antimony		1000	-2.50		1030	103.0
Arsenic		1000	0.00		1020	102.0
Barium		500	3.50		520	104.0
Beryllium		500	-0.700		518	103.6
Bismuth		500	-16.7		502	100.4
Boron		500	0.800		521	104.2
Cadmium		1000	-1.10		1080	108.0
Calcium	400000	400000	400000	100.0	393000	98.3
Cerium			78.3		573*	
Chromium		500	-0.100		498	99.6
Cobalt		500	1.40		503	100.6
Copper		500	-2.70		551	110.2
Iron	200000	200000	211000	105.5	203000	101.5
Lead		1000	2.20		1020	102.0
Lithium		500	-4.50		507	101.4
Magnesium	500000	500000	517000	103.4	510000	102.0
Manganese		500	-6.90		525	105.0
Molybdenum		500	3.90		483	96.6
Nickel		1000	1.70		1010	101.0
Phosphorus		500	10.3		513	102.6
Potassium			-14.9		1.30	
Selenium		1000	-2.80		962	96.2
Silicon		500	-7.70		525	105.0
Silver		1000	1.40		1030	103.0
Sodium			39.3		110	
Strontium		500	-1.60		512	102.4
Sulfur		500	7.10		509	101.8
Thallium		1000	7.10		968	96.8
Tin		500	-0.400		500	100.0
Titanium		500	-2.10		500	100.0
Tungsten		500	2.30		503	100.6
Vanadium		500	2.20		513	102.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50891 Units: ug/l

Time:			13:14			13:19
Sample ID:	ICSA	ICSAB	ICSAL		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec

Zinc		1000	5.50		1030	103.0
Zirconium		500	-0.900		457	91.4

(*) Outside of QC limits
(anr) Analyte not requested

6.2.8
6

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:30	MA50895-STD1	1		STDA
12:35	MA50895-STD2	1		STDB
12:40	ZZZZZZ	1		
12:45	ZZZZZZ	1		
12:51	MA50895-ICV1	1		
12:58	MA50895-ICB1	1		
13:03	MA50895-CCV1	1		
13:08	MA50895-CCB1	1		
13:13	MA50895-CRI1	1		
13:18	MA50895-CRID1	1		
13:24	MA50895-ICSA1	1		
13:29	MA50895-ICSAB1	1		
13:33	MA50895-HSTD1	1		
13:39	MA50895-HSTD2	1		
13:44	ZZZZZZ	1		
13:49	ZZZZZZ	1		
13:54	ZZZZZZ	1		
13:59	MA50895-CCV2	1		
14:04	MA50895-CCB2	1		
14:10	MA50895-CRI2	1		
14:16	MA50895-CRI3	1		
14:21	ZZZZZZ	1		
14:26	ZZZZZZ	2		
14:31	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:41	MP27569-S1	5		
14:46	MP27569-S2	5		
14:51	MA50895-CCV3	1		
14:56	MA50895-CCB3	1		
15:01	JD28454-12	5		(sample used for QC only; not part of login JD28614)
15:06	MP27569-SD1	25		
15:11	ZZZZZZ	5		
15:17	ZZZZZZ	10		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:22	ZZZZZZ	5		
15:27	ZZZZZZ	5		
15:32	ZZZZZZ	5		
15:37	ZZZZZZ	10		
15:42	MA50895-CCV4	1		
15:47	MA50895-CCB4	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	MP27592-S1	5		
16:07	MP27592-S2	5		
16:12	JD28584-1	5		(sample used for QC only; not part of login JD28614)
16:17	MP27592-SD1	25		
16:23	ZZZZZZ	50		
16:28	ZZZZZZ	50		
16:33	ZZZZZZ	50		
16:38	MA50895-CCV5	1		
16:43	MA50895-CCB5	1		
16:48	ZZZZZZ	1		
16:54	ZZZZZZ	50		
16:59	ZZZZZZ	10		
17:04	ZZZZZZ	10		
17:09	ZZZZZZ	50		
17:14	ZZZZZZ	50		
17:19	ZZZZZZ	50		
17:25	ZZZZZZ	50		
17:30	ZZZZZZ	100		
17:35	MA50895-CCV6	1		
17:40	MA50895-CCB6	1		
17:45	ZZZZZZ	100		
17:50	ZZZZZZ	2		
17:55	ZZZZZZ	2		
18:00	ZZZZZZ	200		
18:06	ZZZZZZ	2		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:11	MA50895-CCV7	1		
18:16	MA50895-CCB7	1		
18:21	MP27688-MB1	1		rerun with sunocco
18:26	MP27688-B1	1		rerun with sunocco
18:31	ZZZZZZ	1		
18:36	ZZZZZZ	1		
18:41	ZZZZZZ	1		
18:46	ZZZZZZ	1		
18:51	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:07	MA50895-CCV8	1		
19:12	MA50895-CCB8	1		
19:17	ZZZZZZ	1		
19:22	ZZZZZZ	1		
19:28	ZZZZZZ	1		
19:33	ZZZZZZ	1		
19:38	ZZZZZZ	1		
19:43	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
19:59	MP27687-MB1	1		ZN raised to 60ppb for the batch
20:04	MP27687-B1	1		
20:09	MA50895-CCV9	1		
20:14	MA50895-CCB9	1		
20:19	MP27687-S1	1		CCV out
20:24	MP27687-S2	1		CCV out
20:29	JD28597-4	1		(sample used for QC only; not part of login JD28614)
20:34	MP27687-SD1	5		CCV out
20:39	ZZZZZZ	1		
20:45	ZZZZZZ	5		
20:50	ZZZZZZ	1		
20:55	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:00	ZZZZZZ	1		
21:05	ZZZZZZ	1		
21:10	MA50895-CCV10	1		
21:15	MA50895-CCB10	1		
21:21	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:31	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:41	ZZZZZZ	1		
21:46	ZZZZZZ	1		
21:51	ZZZZZZ	1		
21:56	JD28614-15	1		
22:02	JD28614-16	1		
----->	Last reportable sample/prep for job JD28614			
22:07	MA50895-CCV11	1		
22:12	MA50895-CCB11	1		
----->	Last reportable CCB for job JD28614			
22:17	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:27	ZZZZZZ	1		
22:33	ZZZZZZ	1		
22:38	MP27685-MB1	1		
22:43	MP27685-B1	1		
22:48	MP27685-S1	1		
22:53	MP27685-S2	1		
22:57	JD28870-2	1		(sample used for QC only; not part of login JD28614)
23:03	MP27685-SD1	5		
23:08	MA50895-CCV12	1		
23:13	MA50895-CCB12	1		
23:18	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:33	ZZZZZZ	1		
23:38	ZZZZZZ	1		
23:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:48	ZZZZZZ	1		
23:54	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:04	ZZZZZZ	1		
00:09	MA50895-CCV13	1		
00:14	MA50895-CCB13	1		
00:19	ZZZZZZ	1		
00:24	ZZZZZZ	1		
00:29	ZZZZZZ	1		
00:34	ZZZZZZ	1		
00:40	ZZZZZZ	1		
00:45	ZZZZZZ	1		
00:50	ZZZZZZ	1		
00:55	ZZZZZZ	1		
01:00	MA50895-CCV14	1		
01:05	MA50895-CCB14	1		
01:10	MP27686-MB1	1		
01:15	MP27686-B1	1		
01:20	MP27686-S1	1		
01:25	MP27686-S2	1		needs post spike for As, ba, Cr, SE
01:30	JD28868-1	1		(sample used for QC only; not part of login JD28614)
01:35	MP27686-SD1	5		
01:40	ZZZZZZ	1		
01:45	ZZZZZZ	1		
01:50	ZZZZZZ	1		
01:55	ZZZZZZ	1		
02:01	MA50895-CCV15	1		
02:06	MA50895-CCB15	1		
02:11	ZZZZZZ	1		
02:16	ZZZZZZ	1		
02:21	ZZZZZZ	1		
02:26	ZZZZZZ	1		
02:31	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:36	ZZZZZZ	1		
02:41	ZZZZZZ	1		
02:46	ZZZZZZ	1		
02:51	ZZZZZZ	1		
02:56	MA50895-CCV16	1		
03:01	MA50895-CCB16	1		
03:06	ZZZZZZ	1		
03:11	ZZZZZZ	1		
03:16	ZZZZZZ	1		
03:21	ZZZZZZ	1		
03:26	ZZZZZZ	1		
03:31	ZZZZZZ	1		
03:36	ZZZZZZ	1		
03:42	ZZZZZZ	1		
03:47	MA50895-CCV17	1		
03:52	MA50895-CCB17	1		
03:57	ZZZZZZ	1		
04:02	ZZZZZZ	1		
04:08	ZZZZZZ	1		
04:13	ZZZZZZ	1		
04:18	ZZZZZZ	1		
04:23	ZZZZZZ	1		
04:29	MA50895-CCV18	1		
04:34	MA50895-CCB18	1		

Refer to raw data for calibration curve and standards.

6.3
6

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Element: P Dilution b
12:40	ZZZZZZ	1
12:45	ZZZZZZ	1
12:51	MA50895-ICV1	1 X
12:58	MA50895-ICB1	1 X
13:03	MA50895-CCV1	1 X
13:08	MA50895-CCB1	1 X
13:13	MA50895-CRI1	1
13:18	MA50895-CRID1	1 X
13:24	MA50895-ICSA1	1 X
13:29	MA50895-ICSAB1	1 X
13:33	MA50895-HSTD1	1 X
13:39	MA50895-HSTD2	1 X
13:44	ZZZZZZ	1
13:49	ZZZZZZ	1
13:54	ZZZZZZ	1
13:59	MA50895-CCV2	1 X
14:04	MA50895-CCB2	1 X
14:10	MA50895-CRI2	1
14:16	MA50895-CRI3	1 X
14:21	ZZZZZZ	1
14:26	ZZZZZZ	2
14:31	ZZZZZZ	1
14:36	ZZZZZZ	1
14:41	MP27569-S1	5 X
14:46	MP27569-S2	5 X
14:51	MA50895-CCV3	1 X
14:56	MA50895-CCB3	1 X
15:01	JD28454-12	5 X (a)
15:06	MP27569-SD1	25 X
15:11	ZZZZZZ	5
15:17	ZZZZZZ	10
15:22	ZZZZZZ	5
15:27	ZZZZZZ	5
	Element: P b	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
15:32	ZZZZZZ	5
15:37	ZZZZZZ	10
15:42	MA50895-CCV4	1 X
15:47	MA50895-CCB4	1 X
15:52	ZZZZZZ	1
15:57	ZZZZZZ	1
16:02	MP27592-S1	5 X
16:07	MP27592-S2	5 X
16:12	JD28584-1	5 (a)
16:17	MP27592-SD1	25 X
16:23	ZZZZZZ	50
16:28	ZZZZZZ	50
16:33	ZZZZZZ	50
16:38	MA50895-CCV5	1 X
16:43	MA50895-CCB5	1 X
16:48	ZZZZZZ	1
16:54	ZZZZZZ	50
16:59	ZZZZZZ	10
17:04	ZZZZZZ	10
17:09	ZZZZZZ	50
17:14	ZZZZZZ	50
17:19	ZZZZZZ	50
17:25	ZZZZZZ	50
17:30	ZZZZZZ	100
17:35	MA50895-CCV6	1 X
17:40	MA50895-CCB6	1 X
17:45	ZZZZZZ	100
17:50	ZZZZZZ	2
17:55	ZZZZZZ	2
18:00	ZZZZZZ	200
18:06	ZZZZZZ	2
18:11	MA50895-CCV7	1 X
18:16	MA50895-CCB7	1 X
		Element: P b

6.3.1
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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
18:21	MP27688-MB1	1
18:26	MP27688-B1	1
18:31	ZZZZZZ	1
18:36	ZZZZZZ	1
18:41	ZZZZZZ	1
18:46	ZZZZZZ	1
18:51	ZZZZZZ	1
18:57	ZZZZZZ	1
19:02	ZZZZZZ	1
19:07	MA50895-CCV8	1 X
19:12	MA50895-CCB8	1 X
19:17	ZZZZZZ	1
19:22	ZZZZZZ	1
19:28	ZZZZZZ	1
19:33	ZZZZZZ	1
19:38	ZZZZZZ	1
19:43	ZZZZZZ	1
19:49	ZZZZZZ	1
19:54	ZZZZZZ	1
19:59	MP27687-MB1	1 X
20:04	MP27687-B1	1 X
20:09	MA50895-CCV9	1 X
20:14	MA50895-CCB9	1 X
20:19	MP27687-S1	1 X
20:24	MP27687-S2	1 X
20:29	JD28597-4	1 X (a)
20:34	MP27687-SD1	5 X
20:39	ZZZZZZ	1
20:45	ZZZZZZ	5
20:50	ZZZZZZ	1
20:55	ZZZZZZ	1
21:00	ZZZZZZ	1
21:05	ZZZZZZ	1

Element: P
b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
21:10	MA50895-CCV10	1 X
21:15	MA50895-CCB10	1 X
21:21	ZZZZZZ	1
21:26	ZZZZZZ	1
21:31	ZZZZZZ	1
21:36	ZZZZZZ	1
21:41	ZZZZZZ	1
21:46	ZZZZZZ	1
21:51	ZZZZZZ	1
21:56	JD28614-15	1 X
22:02	JD28614-16	1 X
22:07	MA50895-CCV11	1 X
22:12	MA50895-CCB11	1 X
22:17	ZZZZZZ	1
22:22	ZZZZZZ	1
22:27	ZZZZZZ	1
22:33	ZZZZZZ	1
22:38	MP27685-MB1	1
22:43	MP27685-B1	1
22:48	MP27685-S1	1
22:53	MP27685-S2	1
22:57	JD28870-2	1 (a)
23:03	MP27685-SD1	5
23:08	MA50895-CCV12	1 X
23:13	MA50895-CCB12	1 X
23:18	ZZZZZZ	1
23:23	ZZZZZZ	1
23:28	ZZZZZZ	1
23:33	ZZZZZZ	1
23:38	ZZZZZZ	1
23:43	ZZZZZZ	1
23:48	ZZZZZZ	1
23:54	ZZZZZZ	1

Element: P
b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50895

Time	Sample Description	Element: P Dilution b
23:59	ZZZZZZ	1
00:04	ZZZZZZ	1
00:09	MA50895-CCV13	1 X
00:14	MA50895-CCB13	1 X
00:19	ZZZZZZ	1
00:24	ZZZZZZ	1
00:29	ZZZZZZ	1
00:34	ZZZZZZ	1
00:40	ZZZZZZ	1
00:45	ZZZZZZ	1
00:50	ZZZZZZ	1
00:55	ZZZZZZ	1
01:00	MA50895-CCV14	1 X
01:05	MA50895-CCB14	1 X
01:10	MP27686-MB1	1 X
01:15	MP27686-B1	1 X
01:20	MP27686-S1	1 X
01:25	MP27686-S2	1 X
01:30	JD28868-1	1 X (a)
01:35	MP27686-SD1	5 X
01:40	ZZZZZZ	1
01:45	ZZZZZZ	1
01:50	ZZZZZZ	1
01:55	ZZZZZZ	1
02:01	MA50895-CCV15	1 X
02:06	MA50895-CCB15	1 X
02:11	ZZZZZZ	1
02:16	ZZZZZZ	1
02:21	ZZZZZZ	1
02:26	ZZZZZZ	1
02:31	ZZZZZZ	1
02:36	ZZZZZZ	1
02:41	ZZZZZZ	1
		Element: P b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
02:46	ZZZZZZ	1
02:51	ZZZZZZ	1
02:56	MA50895-CCV16	1 X
03:01	MA50895-CCB16	1 X
03:06	ZZZZZZ	1
03:11	ZZZZZZ	1
03:16	ZZZZZZ	1
03:21	ZZZZZZ	1
03:26	ZZZZZZ	1
03:31	ZZZZZZ	1
03:36	ZZZZZZ	1
03:42	ZZZZZZ	1
03:47	MA50895-CCV17	1 X
03:52	MA50895-CCB17	1 X
03:57	ZZZZZZ	1
04:02	ZZZZZZ	1
04:08	ZZZZZZ	1
04:13	ZZZZZZ	1
04:18	ZZZZZZ	1
04:23	ZZZZZZ	1
04:29	MA50895-CCV18	1 X
04:34	MA50895-CCB18	1 X

(a) Sample used for QC only; not part of login JD28614.

Element: P
b

6.3.1
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INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:30	MA50895-STD1	1623 R	51950 R	1799 R	4876 R
12:35	MA50895-STD2	1541	50618	1788	4663
12:40	ZZZZZZ	1593	51463	1818	4749
12:45	ZZZZZZ	1637	52540	1839	4895
12:51	MA50895-ICV1	1582	51852	1828	4713
12:58	MA50895-ICB1	1633	51927	1826	4884
13:03	MA50895-CCV1	1597	51685	1822	4742
13:08	MA50895-CCB1	1639	52313	1842	4892
13:13	MA50895-CRI1	No results reported for the elements associated with this internal standard.			
13:18	MA50895-CRID1	1633	52521	1845	4860
13:24	MA50895-ICSA1	1497	48854	1825	4539
13:29	MA50895-ICSAB1	1500	48683	1814	4550
13:33	MA50895-HSTD1	1606	51986	1842	4933
13:39	MA50895-HSTD2	1514	49314	1804	4515
13:44	ZZZZZZ	1634	52142	1829	5043
13:49	ZZZZZZ	1594	51881	1839	4881
13:54	ZZZZZZ	1665	52626	1834	4929
13:59	MA50895-CCV2	1599	50552	1804	4730
14:04	MA50895-CCB2	1655	52297	1837	4919
14:10	MA50895-CRI2	No results reported for the elements associated with this internal standard.			
14:16	MA50895-CRI3	1648	52128	1838	4876
14:21	ZZZZZZ	1669	52978	1879	4933
14:26	ZZZZZZ	1731	54609	1904	4973
14:31	ZZZZZZ	1671	52110	1834	4970
14:36	ZZZZZZ	1636	51020	1823	4869
14:41	MP27569-S1	1563	50404	1780	4569
14:46	MP27569-S2	1598	50810	1802	4644
14:51	MA50895-CCV3	1603	50339	1822	4719
14:56	MA50895-CCB3	1676	51427	1809	4940
15:01	JD28454-12	1575	50205	1785	4573
15:06	MP27569-SD1	1625	50840	1800	4793
15:11	ZZZZZZ	1584	50517	1783	4540
15:17	ZZZZZZ	1539	49700	1774	4482

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:22	ZZZZZZ	1516	49343	1771	4417
15:27	ZZZZZZ	1552	49576	1762	4529
15:32	ZZZZZZ	1566	50385	1793	4522
15:37	ZZZZZZ	1561	50004	1775	4585
15:42	MA50895-CCV4	1620	50686	1799	4782
15:47	MA50895-CCB4	1651	50880	1798	4868
15:52	ZZZZZZ	1663	51443	1814	4887
15:57	ZZZZZZ	1636	51326	1839	4807
16:02	MP27592-S1	1637	50833	1830	4775
16:07	MP27592-S2	1635	51181	1810	4771
16:12	JD28584-1	1636	50896	1808	4786
16:17	MP27592-SD1	1651	51246	1811	4862
16:23	ZZZZZZ	1629	51029	1798	4733
16:28	ZZZZZZ	1651	51387	1795	4795
16:33	ZZZZZZ	1655	52126	1819	4824
16:38	MA50895-CCV5	1605	50128	1783	4729
16:43	MA50895-CCB5	1648	50889	1789	4869
16:48	ZZZZZZ	1658	51441	1817	4903
16:54	ZZZZZZ	1602	50674	1794	4655
16:59	ZZZZZZ	1613	50766	1807	4686
17:04	ZZZZZZ	1611	52028	1814	4673
17:09	ZZZZZZ	1604	51074	1806	4670
17:14	ZZZZZZ	1616	51266	1784	4702
17:19	ZZZZZZ	1622	51598	1794	4733
17:25	ZZZZZZ	1631	51503	1797	4778
17:30	ZZZZZZ	1593	50370	1767	4585
17:35	MA50895-CCV6	1591	50154	1785	4689
17:40	MA50895-CCB6	1652	51031	1802	4879
17:45	ZZZZZZ	1604	50625	1771	4628
17:50	ZZZZZZ	1658	51779	1817	4835
17:55	ZZZZZZ	1636	51367	1792	4761
18:00	ZZZZZZ	1620	50693	1782	4696
18:06	ZZZZZZ	1651	51764	1802	4812

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:11	MA50895-CCV7	1621	50768	1787	4783
18:16	MA50895-CCB7	1652	51688	1788	4891
18:21	MP27688-MB1	1673	52525	1825	4933
18:26	MP27688-B1	1623	51167	1784	4793
18:31	ZZZZZ	1720	54435	1934	4674
18:36	ZZZZZ	1673	52540	1851	4836
18:41	ZZZZZ	1650	52243	1843	4808
18:46	ZZZZZ	1657	51854	1832	4807
18:51	ZZZZZ	1656	52115	1837	4806
18:57	ZZZZZ	1622	51248	1808	4666
19:02	ZZZZZ	1626	51740	1804	4740
19:07	MA50895-CCV8	1604	50566	1788	4725
19:12	MA50895-CCB8	1658	51024	1790	4898
19:17	ZZZZZ	1638	52160	1844	4710
19:22	ZZZZZ	1619	49682	1797	4686
19:28	ZZZZZ	1640	52187	1839	4698
19:33	ZZZZZ	1648	52509	1851	4717
19:38	ZZZZZ	1623	50721	1810	4640
19:43	ZZZZZ	1647	51905	1819	4830
19:49	ZZZZZ	1655	52590	1835	4901
19:54	ZZZZZ	1664	51180	1780	4913
19:59	MP27687-MB1	1676	51865	1818	4946
20:04	MP27687-B1	1647	51770	1874	4846
20:09	MA50895-CCV9	1637	51346	1792	4806
20:14	MA50895-CCB9	1683	52415	1805	4962
20:19	MP27687-S1	1649	51690	1834	4834
20:24	MP27687-S2	1641	51518	1869	4816
20:29	JD28597-4	1647	52550	1820	4834
20:34	MP27687-SD1	1680	51602	1807	4947
20:39	ZZZZZ	3915 !a	125390 !a	4442 !a	5394
20:45	ZZZZZ	No results reported for the elements associated with this internal standard.			
20:50	ZZZZZ	1891	62331	2250	5426
20:55	ZZZZZ	1817	59855	2209	5248

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:00	ZZZZZZ	1917	61543	2232	5529
21:05	ZZZZZZ	1928	61946	2250	5606
21:10	MA50895-CCV10	1828	57840	2112	5300
21:15	MA50895-CCB10	1819	57621	2030	5329
21:21	ZZZZZZ	1824	59508	2142	5311
21:26	ZZZZZZ	1881	61620	2207	5442
21:31	ZZZZZZ	1890	61960	2223	5471
21:36	ZZZZZZ	1790	59693	2171	5079
21:41	ZZZZZZ	1826	58227	2130	5266
21:46	ZZZZZZ	1796	59243	2109	5153
21:51	ZZZZZZ	1824	59204	2176	5215
21:56	JD28614-15	1903	59682	2194	5553
22:02	JD28614-16	1885	60617	2081	5500
22:07	MA50895-CCV11	1774	57290	2076	5175
22:12	MA50895-CCB11	1819	57350	2047	5366
22:17	ZZZZZZ	1774	58502	2181	5118
22:22	ZZZZZZ	1800	59846	2226	5166
22:27	ZZZZZZ	1924	59583	2166	5606
22:33	ZZZZZZ	1815	58361	2202	5331
22:38	MP27685-MB1	1796	57044	2021	5274
22:43	MP27685-B1	1752	56262	2020	5139
22:48	MP27685-S1	1772	55470	2032	5168
22:53	MP27685-S2	1773	56188	2028	5165
22:57	JD28870-2	1816	56017	1999	5274
23:03	MP27685-SD1	1794	55498	1976	5233
23:08	MA50895-CCV12	1707	54569	1932	5001
23:13	MA50895-CCB12	1801	56538	1992	5273
23:18	ZZZZZZ	1808	55830	2030	5233
23:23	ZZZZZZ	1803	56511	2029	5198
23:28	ZZZZZZ	1836	56916	2091	5205
23:33	ZZZZZZ	1671	55202	1974	4669
23:38	ZZZZZZ	1864	58837	2134	5190
23:43	ZZZZZZ	1807	57003	2047	5194

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:48	ZZZZZZ	1848	57943	2091	5195
23:54	ZZZZZZ	1841	57856	2085	5220
23:59	ZZZZZZ	1827	57307	2079	5196
00:04	ZZZZZZ	1855	58438	2124	5173
00:09	MA50895-CCV13	1742	54749	1944	5099
00:14	MA50895-CCB13	1800	56587	1988	5279
00:19	ZZZZZZ	1820	57206	2070	5193
00:24	ZZZZZZ	1828	57130	2082	5227
00:29	ZZZZZZ	1831	57258	2054	5222
00:34	ZZZZZZ	1811	56257	2032	5225
00:40	ZZZZZZ	1838	57415	2055	5234
00:45	ZZZZZZ	1683	54317	1981	4756
00:50	ZZZZZZ	1815	57120	2068	5220
00:55	ZZZZZZ	1662	55151	1959	4670
01:00	MA50895-CCV14	1710	56655	1954	5015
01:05	MA50895-CCB14	1773	55554	1913	5229
01:10	MP27686-MB1	1790	56735	1977	5253
01:15	MP27686-B1	1767	55826	1953	5190
01:20	MP27686-S1	1808	57642	2062	5133
01:25	MP27686-S2	1807	57976	2057	5123
01:30	JD28868-1	1838	57401	2061	5172
01:35	MP27686-SD1	1792	57361	2001	5199
01:40	ZZZZZZ	1886	59362	2113	5189
01:45	ZZZZZZ	1909	60626	2177	5256
01:50	ZZZZZZ	1903	61094	2161	5196
01:55	ZZZZZZ	1915	60858	2177	5179
02:01	MA50895-CCV15	1743	55770	1938	5099
02:06	MA50895-CCB15	1789	56304	1932	5263
02:11	ZZZZZZ	1914	60214	2141	5239
02:16	ZZZZZZ	1868	59162	2114	5176
02:21	ZZZZZZ	1906	59372	2130	5204
02:26	ZZZZZZ	1772	57242	2026	5241
02:31	ZZZZZZ	1871	59269	2113	5147

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50895
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:36	ZZZZZZ	1860	58831	2069	5194
02:41	ZZZZZZ	1864	58835	2093	5199
02:46	ZZZZZZ	1812	58036	1996	5116
02:51	ZZZZZZ	1842	58810	2071	5179
02:56	MA50895-CCV16	1733	55194	1917	5073
03:01	MA50895-CCB16	1792	57272	1936	5273
03:06	ZZZZZZ	1886	59709	2116	5209
03:11	ZZZZZZ	1872	61042	2075	5286
03:16	ZZZZZZ	1930	61102	2200	5379
03:21	ZZZZZZ	1938	61212	2203	5401
03:26	ZZZZZZ	1926	62167	2157	5225
03:31	ZZZZZZ	1927	62355	2170	5313
03:36	ZZZZZZ	1802	57842	2008	5301
03:42	ZZZZZZ	1785	58032	1981	5253
03:47	MA50895-CCV17	1741	55939	1939	5111
03:52	MA50895-CCB17	1811	57680	1963	5340
03:57	ZZZZZZ	1815	58051	1962	5352
04:02	ZZZZZZ	1793	57918	1953	5285
04:08	ZZZZZZ	1786	55330	2068	5070
04:13	ZZZZZZ	1795	58206	1968	5331
04:18	ZZZZZZ	1774	58039	1990	5258
04:23	ZZZZZZ	1659	57194	1918	4869
04:29	MA50895-CCV18	1722	57160	1944	5105
04:34	MA50895-CCB18	1787	58512	1986	5316

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

6.3.2
6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Metal	RL	IDL	12:58		13:08		14:04		14:56	
			ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.00	<3.0	-0.100	<3.0	0.300	<3.0	0.400	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

6.3.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			12:58		13:08		14:04		14:56	
Sample ID:	RL	IDL	ICB1	final	CCB1	final	CCB2	final	CCB3	final
Metal			raw		raw		raw		raw	
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
 (anr) Analyte not requested

6.3.3

6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Metal	RL	IDL	15:47 CCB4		16:43 CCB5		17:40 CCB6		18:16 CCB7	
			raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	-0.900	<3.0	-0.500	<3.0	-1.30	<3.0	-0.300	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

6.3.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:	15:47	16:43	17:40	18:16						
Sample ID:	CCB4	CCB5	CCB6	CCB7						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
 (anr) Analyte not requested

6.3.3
 6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Metal	RL	IDL	19:12	20:14		21:15		22:12		
			CCB8	raw	final	raw	final	raw	final	raw
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.800	<3.0	0.500	<3.0	0.200	<3.0	0.500	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

6.3.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			19:12		20:14		21:15		22:12	
Sample ID:	RL	IDL	CCB8	final	CCB9	final	CCB10	final	CCB11	final
Metal			raw		raw		raw		raw	

Zinc 20 .3 anr

Zirconium 10 .5

(*) Outside of QC limits
 (anr) Analyte not requested

6.3.3
 6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Metal	Time:	12:51			13:03			13:59		
	Sample ID:	ICV	ICV1	% Rec	CCV	CCV1	% Rec	CCV	CCV2	% Rec
Aluminum	anr									
Antimony										
Arsenic	anr									
Barium	anr									
Beryllium										
Bismuth										
Boron										
Cadmium	anr									
Calcium										
Cerium										
Chromium	anr									
Cobalt										
Copper	anr									
Iron	anr									
Lead	2000	1980	99.0		2000	1990	99.5	2000	1980	99.0
Lithium										
Magnesium										
Manganese	anr									
Molybdenum										
Nickel	anr									
Phosphorus										
Potassium										
Selenium	anr									
Silicon										
Silver	anr									
Sodium	anr									
Strontium										
Sulfur										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:	12:51	13:03	13:59
Sample ID:	ICV	CCV	CCV
Metal	ICV1	CCV1	CCV2
	Results % Rec	Results % Rec	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Metal	Sample ID:	14:51			15:42			16:38		
		CCV	CCV3	% Rec	CCV	CCV4	% Rec	CCV	CCV5	% Rec
Aluminum	anr									
Antimony										
Arsenic	anr									
Barium	anr									
Beryllium										
Bismuth										
Boron										
Cadmium	anr									
Calcium										
Cerium										
Chromium	anr									
Cobalt										
Copper	anr									
Iron	anr									
Lead	2000	2030	101.5	2000	2040	102.0	2000	2030	101.5	
Lithium										
Magnesium										
Manganese	anr									
Molybdenum										
Nickel	anr									
Phosphorus										
Potassium										
Selenium	anr									
Silicon										
Silver	anr									
Sodium	anr									
Strontium										
Sulfur										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:	14:51	15:42	16:38
Sample ID:	CCV3	CCV4	CCV5
Metal	True	True	True
	Results % Rec	Results % Rec	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Metal	Sample ID:	17:35		18:11		19:07			
		CCV	CCV6	CCV	CCV7	CCV	CCV8		
	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2010	100.5	2000	1990	99.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:	17:35	18:11	19:07
Sample ID:	CCV6	CCV7	CCV8
Metal	True	True	True
	Results % Rec	Results % Rec	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Metal	Sample ID: CCV	20:09		CCV	21:10		CCV	22:07	
		CCV9	Results % Rec		CCV10	Results % Rec		CCV11	Results % Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1920	96.0	2000	2000	100.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

	Time:	20:09		21:10		22:07
Sample ID:	CCV	CCV9	CCV	CCV10	CCV	CCV11
Metal	True	Results % Rec	True	Results % Rec	True	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.3.4
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50895 Units: ug/l

Time:	13:33			13:39		
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	8000	8010	100.1			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

6.3.5
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50895 Units: ug/l

Time:		13:33		13:39		
Sample ID:	HSTD	HSTD1	HSTD	HSTD2	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec

Zinc anr

Zirconium

(*) Outside of QC limits
 (anr) Analyte not requested

6.3.5

6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50895 Units: ug/l

Time:				13:18			14:16		
Sample ID:	CRI	CRIA	CRID	CRID1	% Rec		CRI3	% Rec	
Metal	True	True	True	Results			Results	% Rec	
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0						
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000						
Cerium									
Chromium	10		2.0	anr					
Cobalt	50		3.0						
Copper	10		2.0						
Iron	100	500							
Lead	3.0	20	2.5			2.70		90.0	
Lithium	50								
Magnesium	5000	2000	100						
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	anr					
Phosphorus	50								
Potassium	5000		2000						
Selenium	10	20	5.0						
Silicon	200								
Silver	5.0		2.0						
Sodium	5000		1000	anr					
Strontium	10								
Sulfur	50								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0						

6.3.6
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50895 Units: ug/l

Time:				13:18				14:16
Sample ID:	CRI	CRIA	CRID	CRID1				CRI3
Metal	True	True	True	Results	% Rec	Results	% Rec	

Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
 (anr) Analyte not requested

6.3.6
 6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50895 Units: ug/l

Metal	Time:		13:24		13:29	
	Sample ID:	ICSA	ICSAB	ICSAL	ICSAB1	ICSAB1
	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	489000	97.8	478000	95.6
Antimony		1000	2.10		963	96.3
Arsenic		1000	2.10		947	94.7
Barium		500	2.60		489	97.8
Beryllium		500	-0.500		483	96.6
Bismuth		500	-11.0		473	94.6
Boron		500	0.800		490	98.0
Cadmium		1000	-1.10		1010	101.0
Calcium	400000	400000	371000	92.8	364000	91.0
Cerium			74.1		536*	
Chromium		500	0.400		470	94.0
Cobalt		500	1.50		473	94.6
Copper		500	-4.30		522	104.4
Iron	200000	200000	199000	99.5	190000	95.0
Lead		1000	1.90		958	95.8
Lithium		500	-4.70		470	94.0
Magnesium	500000	500000	484000	96.8	477000	95.4
Manganese		500	-6.30		503	100.6
Molybdenum		500	4.00		451	90.2
Nickel		1000	1.60		947	94.7
Phosphorus		500	9.80		479	95.8
Potassium			-49.2		-56.1	
Selenium		1000	-5.50		893	89.3
Silicon		500	-16.0		472	94.4
Silver		1000	3.80		982	98.2
Sodium			-33.8		21.7	
Strontium		500	-1.40		478	95.6
Sulfur		500	9.50		472	94.4
Thallium		1000	5.90		908	90.8
Tin		500	-0.100		469	93.8
Titanium		500	-2.10		473	94.6
Tungsten		500	2.20		474	94.8
Vanadium		500	2.20		487	97.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50895 Units: ug/l

Time:			13:24			13:29
Sample ID:	ICSA	ICSAB	ICSAL		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec

Zinc		1000	6.00		961	96.1
Zirconium		500	-0.800		436	87.2

(*) Outside of QC limits
(anr) Analyte not requested

6.3.7
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SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50902

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:28	MA50902-STD1	1		STDA
08:33	MA50902-STD2	1		STDB
08:38	ZZZZZZ	1		
08:43	ZZZZZZ	1		
08:48	MA50902-ICV1	1		
08:53	MA50902-ICB1	1		
08:58	MA50902-CCV1	1		
09:03	MA50902-CCB1	1		
09:08	MA50902-CRI1	1		
09:13	MA50902-CRID1	1		
09:18	MA50902-ICSA1	1		
09:23	MA50902-ICSAB1	1		
09:28	MA50902-HSTD1	1		
09:33	MA50902-HSTD2	1		
09:38	ZZZZZZ	1		
09:43	ZZZZZZ	1		
09:49	ZZZZZZ	1		
09:54	MA50902-CCV2	1		
09:59	MA50902-CCB2	1		
10:04	MP27688-MB1	1		
10:09	MP27688-B1	1		
10:14	MP27688-S1	1		
10:18	MP27688-S2	1		
10:23	JD28553-1	1		(sample used for QC only; not part of login JD28614)
10:28	MP27688-SD1	5		
10:33	ZZZZZZ	1		
10:39	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:49	MA50902-CCV3	1		
10:54	MA50902-CCB3	1		
10:59	ZZZZZZ	5		
11:04	ZZZZZZ	5		
11:09	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:14	MP27681-MB1	5		
11:19	MP27681-B1	5		
11:25	MP27681-S1	5		
11:29	MP27681-S2	5		
11:34	MP27681-D1	5		
11:40	JD28603-2	5		(sample used for QC only; not part of login JD28614)
11:45	MA50902-CCV4	1		
11:50	MA50902-CCB4	1		
11:55	MP27681-SD1	25		
12:00	ZZZZZZ	5		
12:05	ZZZZZZ	5		
12:11	ZZZZZZ	5		
12:16	ZZZZZZ	5		
12:21	ZZZZZZ	1		
12:26	ZZZZZZ	1		
12:31	ZZZZZZ	5		
12:37	ZZZZZZ	1		
12:42	MA50902-CCV5	1		
12:47	MA50902-CCB5	1		
12:52	MA50902-CRID2	1		
12:57	MA50902-CRI2	1		
13:02	MA50902-ICSA2	1		
13:07	MA50902-ICSAB2	1		
13:12	MA50902-CCV6	1		
13:17	MA50902-CCB6	1		
13:22	ZZZZZZ	5		
13:27	ZZZZZZ	5		
13:32	ZZZZZZ	5		
13:38	ZZZZZZ	1		
13:43	JD28614-12	2		
----->	Last reportable sample/prep for job JD28614			
13:48	ZZZZZZ	25		
13:53	ZZZZZZ	50		
13:58	ZZZZZZ	1		

6.4
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SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:03	ZZZZZZ	1		
14:08	MA50902-CCV7	1		
14:13	MA50902-CCB7	1		
----->	Last reportable CCB for job JD28614			
14:18	MP27593-S3	1		
14:23	MP27593-S4	1		
14:28	ZZZZZZ	5		
14:33	ZZZZZZ	5		
14:38	ZZZZZZ	5		
14:43	ZZZZZZ	50		
14:49	ZZZZZZ	5		
14:54	ZZZZZZ	5		
14:59	MA50902-CCV8	1		
15:04	MA50902-CCB8	1		
15:09	ZZZZZZ	5		
15:14	MP27680-S1	5		
15:19	MP27680-S2	5		
15:24	ZZZZZZ	100		
15:29	MP27689-MB1	1		
15:34	MP27689-B1	1		
15:39	MP27689-S1	1		
15:43	MP27689-S2	1		
15:48	JD28662-1	1		(sample used for QC only; not part of login JD28614)
15:53	MA50902-CCV9	1		
15:58	MA50902-CCB9	1		
16:03	MP27689-SD1	5		
16:08	MP27689-S1	5		
16:13	MP27689-S2	5		
16:18	JD28662-1	5		(sample used for QC only; not part of login JD28614)
16:23	MP27689-SD1	25		
16:28	ZZZZZZ	1		
16:33	ZZZZZZ	10		
16:38	ZZZZZZ	1		
16:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:48	MA50902-CCV10	1		
16:53	MA50902-CCB10	1		
16:58	ZZZZZZ	1		
17:04	ZZZZZZ	2		
17:09	ZZZZZZ	2		
17:14	ZZZZZZ	5		
17:19	ZZZZZZ	1		
17:24	ZZZZZZ	2		
17:29	ZZZZZZ	2		
17:34	ZZZZZZ	1		
17:39	MA50902-CCV11	1		
17:44	MA50902-CCB11	1		
17:49	ZZZZZZ	1		
17:54	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
08:38	ZZZZZZ	1
08:43	ZZZZZZ	1
08:48	MA50902-ICV1	1 X
08:53	MA50902-ICB1	1 X
08:58	MA50902-CCV1	1 X
09:03	MA50902-CCB1	1 X
09:08	MA50902-CRI1	1 X
09:13	MA50902-CRID1	1 X
09:18	MA50902-ICSA1	1 X
09:23	MA50902-ICSAB1	1 X
09:28	MA50902-HSTD1	1 X
09:33	MA50902-HSTD2	1 X
09:38	ZZZZZZ	1
09:43	ZZZZZZ	1
09:49	ZZZZZZ	1
09:54	MA50902-CCV2	1 X
09:59	MA50902-CCB2	1 X
10:04	MP27688-MB1	1
10:09	MP27688-B1	1
10:14	MP27688-S1	1
10:18	MP27688-S2	1
10:23	JD28553-1	1 (a)
10:28	MP27688-SD1	5
10:33	ZZZZZZ	1
10:39	ZZZZZZ	1
10:44	ZZZZZZ	1
10:49	MA50902-CCV3	1 X
10:54	MA50902-CCB3	1 X
10:59	ZZZZZZ	5
11:04	ZZZZZZ	5
11:09	ZZZZZZ	1
11:14	MP27681-MB1	5 X
11:19	MP27681-B1	5 X
	Element: P b	

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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
11:25	MP27681-S1	5 X
11:29	MP27681-S2	5 X
11:34	MP27681-D1	5 X
11:40	JD28603-2	5 X (a)
11:45	MA50902-CCV4	1 X
11:50	MA50902-CCB4	1 X
11:55	MP27681-SD1	25 X
12:00	ZZZZZZ	5
12:05	ZZZZZZ	5
12:11	ZZZZZZ	5
12:16	ZZZZZZ	5
12:21	ZZZZZZ	1
12:26	ZZZZZZ	1
12:31	ZZZZZZ	5
12:37	ZZZZZZ	1
12:42	MA50902-CCV5	1 X
12:47	MA50902-CCB5	1 X
12:52	MA50902-CRID2	1 X
12:57	MA50902-CRI2	1 X
13:02	MA50902-ICSA2	1 X
13:07	MA50902-ICSAB2	1 X
13:12	MA50902-CCV6	1 X
13:17	MA50902-CCB6	1 X
13:22	ZZZZZZ	5
13:27	ZZZZZZ	5
13:32	ZZZZZZ	5
13:38	ZZZZZZ	1
13:43	JD28614-12	2 X
13:48	ZZZZZZ	25
13:53	ZZZZZZ	50
13:58	ZZZZZZ	1
14:03	ZZZZZZ	1
14:08	MA50902-CCV7	1 X
		Element: P b

6.4.1
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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP
 Analyst: ND
 Parameters: Pb

Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Run ID: MA50902

Time	Sample Description	Element: P Dilution b
14:13	MA50902-CCB7	1 X
14:18	MP27593-S3	1
14:23	MP27593-S4	1
14:28	ZZZZZZ	5
14:33	ZZZZZZ	5
14:38	ZZZZZZ	5
14:43	ZZZZZZ	50
14:49	ZZZZZZ	5
14:54	ZZZZZZ	5
14:59	MA50902-CCV8	1 X
15:04	MA50902-CCB8	1 X
15:09	ZZZZZZ	5
15:14	MP27680-S1	5
15:19	MP27680-S2	5
15:24	ZZZZZZ	100
15:29	MP27689-MB1	1
15:34	MP27689-B1	1
15:39	MP27689-S1	1 X
15:43	MP27689-S2	1 X
15:48	JD28662-1	1 X (a)
15:53	MA50902-CCV9	1 X
15:58	MA50902-CCB9	1 X
16:03	MP27689-SD1	5 X
16:08	MP27689-S1	5
16:13	MP27689-S2	5
16:18	JD28662-1	5
16:23	MP27689-SD1	25
16:28	ZZZZZZ	1
16:33	ZZZZZZ	10
16:38	ZZZZZZ	1
16:43	ZZZZZZ	1
16:48	MA50902-CCV10	1 X
16:53	MA50902-CCB10	1 X
	Element: P	b

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Element: P Dilution b
16:58	ZZZZZZ	1
17:04	ZZZZZZ	2
17:09	ZZZZZZ	2
17:14	ZZZZZZ	5
17:19	ZZZZZZ	1
17:24	ZZZZZZ	2
17:29	ZZZZZZ	2
17:34	ZZZZZZ	1
17:39	MA50902-CCV11	1 X
17:44	MA50902-CCB11	1 X
17:49	ZZZZZZ	1
17:54	ZZZZZZ	1

(a) Sample used for QC only; not part of login JD28614.

Element: P
b

6.4.1

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INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:28	MA50902-STD1	3121 R	82184 R	7606 R	8365 R
08:33	MA50902-STD2	3014	77898	7505	7416
08:38	ZZZZZZ	3094	80300	7583	7701
08:43	ZZZZZZ	3166	82575	7646	8451
08:48	MA50902-ICV1	3102	80657	7595	7725
08:53	MA50902-ICB1	3178	83155	7592	8468
08:58	MA50902-CCV1	3110	80641	7627	7728
09:03	MA50902-CCB1	3196	83567	7624	8511
09:08	MA50902-CRI1	3167	82523	7582	8335
09:13	MA50902-CRID1	3187	83028	7497	8462
09:18	MA50902-ICSA1	2957	73716	7230	7005
09:23	MA50902-ICSAB1	2959	74169	7203	7004
09:28	MA50902-HSTD1	3167	81119	7284	8305
09:33	MA50902-HSTD2	2954	73899	7026	6962
09:38	ZZZZZZ	3177	80923	7232	8481
09:43	ZZZZZZ	3162	82267	7273	8524
09:49	ZZZZZZ	3221	81940	7211	8540
09:54	MA50902-CCV2	3139	78935	7193	7770
09:59	MA50902-CCB2	3226	81718	7177	8554
10:04	MP27688-MB1	3240	82616	7307	8602
10:09	MP27688-B1	3182	80311	7271	7989
10:14	MP27688-S1	3165	79959	7283	7859
10:18	MP27688-S2	3163	80082	7301	7862
10:23	JD28553-1	3214	81390	7386	8267
10:28	MP27688-SD1	3232	82364	7287	8503
10:33	ZZZZZZ	3015	76458	7230	7339
10:39	ZZZZZZ	3107	78624	7311	7522
10:44	ZZZZZZ	3136	79793	7370	7635
10:49	MA50902-CCV3	3153	79034	7147	7790
10:54	MA50902-CCB3	3228	81877	7230	8567
10:59	ZZZZZZ	3147	79508	7221	8007
11:04	ZZZZZZ	3171	80167	7265	8126
11:09	ZZZZZZ	3341	84272	7464	8932

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:14	MP27681-MB1	3046	75672	7139	7485
11:19	MP27681-B1	3122	77174	7165	7586
11:25	MP27681-S1	3096	77332	7234	7495
11:29	MP27681-S2	3104	77772	7196	7526
11:34	MP27681-D1	3072	77014	7229	7515
11:40	JD28603-2	3075	76733	7183	7526
11:45	MA50902-CCV4	3142	79109	7210	7763
11:50	MA50902-CCB4	3225	81512	7192	8557
11:55	MP27681-SD1	3154	79511	7191	8071
12:00	ZZZZZ	3073	76586	7140	7527
12:05	ZZZZZ	3073	76607	6944	7513
12:11	ZZZZZ	3078	76779	7126	7531
12:16	ZZZZZ	3063	76637	7164	7487
12:21	ZZZZZ	3102	77707	7200	7686
12:26	ZZZZZ	3095	77582	7265	7631
12:31	ZZZZZ	3079	77105	7144	7565
12:37	ZZZZZ	3086	78133	7271	7627
12:42	MA50902-CCV5	3145	79360	7240	7763
12:47	MA50902-CCB5	3225	82243	7289	8555
12:52	MA50902-CRID2	3213	82245	7317	8498
12:57	MA50902-CRI2	3206	81528	7355	8418
13:02	MA50902-ICSA2	2992	74902	7244	7060
13:07	MA50902-ICSAB2	2983	74362	7189	7038
13:12	MA50902-CCV6	3157	79488	7281	7812
13:17	MA50902-CCB6	3242	82368	7270	8597
13:22	ZZZZZ	3094	77684	7195	7555
13:27	ZZZZZ	3092	77313	7203	7583
13:32	ZZZZZ	3089	77661	7150	7611
13:38	ZZZZZ	3245	83146	7349	8604
13:43	JD28614-12	3270	82114	7519	7949
13:48	ZZZZZ	3358	85105	7560	8495
13:53	ZZZZZ	3282	83516	7390	8487
13:58	ZZZZZ	3237	81876	7224	8575

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:03	ZZZZZZ	3246	82943	7304	8613
14:08	MA50902-CCV7	3150	78836	7180	7782
14:13	MA50902-CCB7	3230	81436	7169	8552
14:18	MP27593-S3	2915	72264	7089	6632
14:23	MP27593-S4	2927	71959	7111	6646
14:28	ZZZZZZ	3202	81081	7203	8368
14:33	ZZZZZZ	3205	81336	7248	8326
14:38	ZZZZZZ	3167	79103	7179	7975
14:43	ZZZZZZ	3225	81551	7283	8438
14:49	ZZZZZZ	3197	80428	7243	8267
14:54	ZZZZZZ	3200	80901	7210	8345
14:59	MA50902-CCV8	3149	78862	7187	7775
15:04	MA50902-CCB8	3231	81959	7192	8554
15:09	ZZZZZZ	3239	82156	7269	8592
15:14	MP27680-S1	3025	77128	7104	7596
15:19	MP27680-S2	3041	77455	7137	7632
15:24	ZZZZZZ	3221	81747	7191	8497
15:29	MP27689-MB1	3244	82901	7371	8604
15:34	MP27689-B1	3193	80470	7374	8002
15:39	MP27689-S1	3095	78524	7284	7550
15:43	MP27689-S2	3095	79023	7320	7559
15:48	JD28662-1	3102	78058	7273	7701
15:53	MA50902-CCV9	3148	79235	7203	7779
15:58	MA50902-CCB9	3237	82028	7240	8575
16:03	MP27689-SD1	3180	80530	7225	8227
16:08	MP27689-S1	No results reported for the elements associated with this internal standard.			
16:13	MP27689-S2	No results reported for the elements associated with this internal standard.			
16:18	JD28662-1	No results reported for the elements associated with this internal standard.			
16:23	MP27689-SD1	No results reported for the elements associated with this internal standard.			
16:28	ZZZZZZ	2944	73697	7276	6635
16:33	ZZZZZZ	3132	78884	7232	7806
16:38	ZZZZZZ	3123	79490	7363	7876
16:43	ZZZZZZ	2958	73849	7355	6674

INTERNAL STANDARD SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 Analyst: ND Run ID: MA50902
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:48	MA50902-CCV10	3161	79559	7230	7811
16:53	MA50902-CCB10	3240	81995	7282	8577
16:58	ZZZZZZ	3140	80121	7346	7923
17:04	ZZZZZZ	3160	79195	7218	7986
17:09	ZZZZZZ	3201	80725	7422	8079
17:14	ZZZZZZ	3219	81608	7413	8327
17:19	ZZZZZZ	3156	78804	7508	7784
17:24	ZZZZZZ	3194	81314	7504	8053
17:29	ZZZZZZ	3227	82575	7695	8171
17:34	ZZZZZZ	3237	83665	7742	8309
17:39	MA50902-CCV11	3211	81545	7576	7938
17:44	MA50902-CCB11	3310	84911	7595	8782
17:49	ZZZZZZ	3322	85917	7762	8778
17:54	ZZZZZZ	3330	83571	7857	8822

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

6.4.2
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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50902 Units: ug/l

Metal	RL	IDL	08:53		09:03		09:59		10:54	
			ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	-0.100	<3.0	-0.100	<3.0	0.400	<3.0	0.800	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

6.4.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50902 Units: ug/l

Time:			08:53		09:03		09:59		10:54	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								
(*) Outside of QC limits										
(anr) Analyte not requested										

6.4.3
6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50902 Units: ug/l

Metal	RL	IDL	11:50	12:47		13:17		14:13		
			CCB4	raw	final	raw	final	raw	final	raw
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	0.600	<3.0	0.600	<3.0	0.100	<3.0	0.00	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

6.4.3
6

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: result < RL Run ID: MA50902 Units: ug/l

Time:			11:50		12:47		13:17		14:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								

(*) Outside of QC limits
 (anr) Analyte not requested

6.4.3
 6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Metal	Sample ID: ICV	08:48		CCV	08:58		CCV	09:54	
		ICV1	Results % Rec		CCV1	Results % Rec		CCV2	Results % Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2010	100.5	2000	2070	103.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								

6.4.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:	08:48	08:58	09:54
Sample ID:	ICV	ICV1	CCV
Metal	True	Results % Rec	True

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.4.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:	10:49	11:45	12:42
Sample ID:	CCV3	CCV4	CCV5
Metal	True	True	True
	Results	Results	Results
	% Rec	% Rec	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000 2060 103.0	2000 2070 103.5	2000 2060 103.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium	anr		

6.4.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

	Time:	10:49		11:45		12:42
Sample ID:	CCV	CCV3	CCV	CCV4	CCV	CCV5
Metal	True	Results % Rec	True	Results % Rec	True	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.4.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:	13:12			14:08		
Sample ID:	CCV	CCV6	CCV	CCV7		
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	anr					
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	2000	2060	103.0	2000	2060	103.0
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

6.4.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

	Time:	13:12		14:08	
Sample ID:	CCV	CCV6	CCV	CCV7	
Metal	True	Results	% Rec	True	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.4.4
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Metal	Time: 09:28		% Rec	Time: 09:33		% Rec
	HSTD	HSTD1		HSTD	HSTD2	
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	8000	8240	103.0			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

6.4.5
6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:28		09:33	
Sample ID:	HSTD	HSTD1	HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results % Rec

Zinc anr

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

6.4.5
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				09:08			09:13			12:52
Sample ID:	CRI	CRIA	CRID	CRID1	% Rec	CRID1	% Rec	CRID2	% Rec	
Metal	True	True	True	Results		Results		Results		
Aluminum	200	500	100	anr						
Antimony	6.0	20	3.0	anr						
Arsenic	8.0	20	3.0	anr						
Barium	200		4.0	anr						
Beryllium	2.0		1.0	anr						
Bismuth	20									
Boron	100		10							
Cadmium	3.0		1.0	anr						
Calcium	5000	2000	1000	anr						
Cerium										
Chromium	10		2.0	anr						
Cobalt	50		3.0	anr						
Copper	10		2.0	anr						
Iron	100	500		anr						
Lead	3.0	20	2.5	3.40	113.3					
Lithium	50									
Magnesium	5000	2000	100	anr						
Manganese	15		3.0	anr						
Molybdenum	20									
Nickel	10		4.0	anr						
Phosphorus	50									
Potassium	5000		2000	anr						
Selenium	10	20	5.0	anr						
Silicon	200									
Silver	5.0		2.0	anr						
Sodium	5000		1000	anr						
Strontium	10									
Sulfur	50									
Thallium	10		2.0							
Tin	10									
Titanium	10									
Tungsten	50									
Vanadium	50		2.0	anr						

6.4.6
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				09:08			09:13			12:52
Sample ID:	CRI	CRIA	CRID	CRID1		CRID1		CRID2		
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec	

Zinc 20 10 anr

Zirconium 10

(*) Outside of QC limits
 (anr) Analyte not requested

6.4.6
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:	Sample ID:	CRI	CRIA	CRID	12:57 CRI2	Results	% Rec
Metal	True	True	True	True	Results	% Rec	
Aluminum	200	500	100	anr			
Antimony	6.0	20	3.0	anr			
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0	anr			
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000	anr			
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0	anr			
Copper	10		2.0	anr			
Iron	100	500		anr			
Lead	3.0	20	2.5	3.10	103.3		
Lithium	50						
Magnesium	5000	2000	100	anr			
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000	anr			
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	anr			

6.4.6
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
 QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				12:57		
Sample ID:	CRI	CRIA	CRID	CRI2		
Metal	True	True	True	Results	%	Rec

Zinc	20		10	anr		
Zirconium	10					

(*) Outside of QC limits
 (anr) Analyte not requested

6.4.6
6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50902 Units: ug/l

Time:			09:18			09:23			13:02			13:07
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSAB2	% Rec	ICSAB2	% Rec		
Metal	True	True	Results		Results		Results		Results			
Aluminum	500000	500000	510000	102.0	503000	100.6	510000	102.0	502000	100.4		
Antimony		1000	2.10		937	93.7	1.50		926	92.6		
Arsenic		1000	0.900		950	95.0	1.70		930	93.0		
Barium		500	1.60		501	100.2	1.70		500	100.0		
Beryllium		500	0.300		496	99.2	0.300		494	98.8		
Bismuth		500	4.40		490	98.0	5.60		484	96.8		
Boron		500	-2.40		472	94.4	-1.70		465	93.0		
Cadmium		1000	-0.300		1020	102.0	-0.300		1020	102.0		
Calcium	400000	400000	393000	98.3	388000	97.0	393000	98.3	388000	97.0		
Cerium			121*		597*		122*		593*			
Chromium		500	-2.70		483	96.6	-2.50		483	96.6		
Cobalt		500	-0.600		486	97.2	-0.600		482	96.4		
Copper		500	-3.30		486	97.2	-3.80		487	97.4		
Iron	200000	200000	206000	103.0	198000	99.0	206000	103.0	198000	99.0		
Lead		1000	0.400		998	99.8	0.500		989	98.9		
Lithium		500	-16.0		472	94.4	-15.1		470	94.0		
Magnesium	500000	500000	507000	101.4	503000	100.6	508000	101.6	503000	100.6		
Manganese		500	0.300		514	102.8	0.400		514	102.8		
Molybdenum		500	-1.50		446	89.2	-1.30		438	87.6		
Nickel		1000	-0.500		981	98.1	-0.700		979	97.9		
Phosphorus		500	15.6		423	84.6	10.3		473	94.6		
Potassium			188		185		245		230			
Selenium		1000	-1.30		904	90.4	8.50		882	88.2		
Silicon		500	-7.60		490	98.0	-7.00		481	96.2		
Silver		1000	-2.10		1020	102.0	-1.70		1010	101.0		
Sodium			-117		-52.4		-43.9		28.9			
Strontium		500	0.700		480	96.0	0.700		479	95.8		
Sulfur		500	19.3		478	95.6	24.8		484	96.8		
Thallium		1000	-8.50		962	96.2	-5.20		865	86.5		
Tin		500	-2.00		464	92.8	-0.300		458	91.6		
Titanium		500	-1.60		485	97.0	-1.00		483	96.6		
Tungsten		500	9.90		473	94.6	9.00		467	93.4		
Vanadium		500	-0.500		491	98.2	-0.800		490	98.0		

6.4.7
6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:18		09:23		13:02		13:07		
Sample ID:	ICSA	ICSAB	ICSAB1	ICSAB1	ICSAB1	ICSAB2	ICSAB2	ICSAB2	ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec

Zinc		1000	3.20		994	99.4	3.10		980	98.0
Zirconium		500	0.700		448	89.6	0.800		447	89.4

(*) Outside of QC limits
(anr) Analyte not requested

6.4.7
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB	
				raw	final

Zirconium 2.0 .04 .23

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.5.1

6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6		SpikeLot		QC
	Original MS	MPSPK2	%	Rec	Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Lead	17.8	258	246	97.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Tungsten					
Vanadium					
Zinc					
Zirconium					

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MS	Spikelet MPSPK2	% Rec	QC Limits
-------	--------------------------	--------------------	-------	--------------

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

6.5.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
-------	---------------------------	--------------------	-------	------------	-------------

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

6.5.2
6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

6.5.3

6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zirconium

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.5.3

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27576
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
-------	-----------------------	---------	------	--------------

Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

6.5.4

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original SDL 1:5	%DIF	QC Limits
-------	-------------------------------	------	--------------

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.5.4
6

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

Zinc	60	.3	6.9		
Zirconium	10	.5	4.1		

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.6.1

6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MS	SpikeLot MPSPK2		% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MS	SpikeLot MPSPK2	% Rec	QC Limits
-------	--------------------------	--------------------	-------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

6.6.2

6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	Spike/lot MPSPK2 % Rec		MSD RPD	QC Limit
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1950	2000	97.5	1.0 20
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
-------	---------------------------	--------------------	-------	------------	-------------

Zinc anr

Zirconium

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

6.6.2

6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

6.6.3
6



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.6.3

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27687
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original SDL 1:5	%DIF	QC Limits
Aluminum	anr		
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium			
Cerium			
Chromium	anr		
Cobalt			
Copper	anr		
Iron	anr		
Lead	0.00	0.00	NC 0-10
Lithium			
Magnesium			
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

6.6.4

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original SDL 1:5	%DIF	QC Limits
-------	-------------------------------	------	--------------

Zinc anr

Zirconium

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.6.4

6



ANALYTICAL REPORT

Lab Number:	L2140027
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:	08/01/21

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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: L2140027
Report Date: 08/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140027-01	PB85-15-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:00	07/26/21
L2140027-02	PB85-17-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:25	07/26/21
L2140027-03	FB-210726	FIELD BLANK	PHILADELPHIA, PA	07/26/21 15:00	07/26/21
L2140027-04	TB-210726	TRIP BLANK (AQUEOUS)	PHILADELPHIA, PA	07/23/21 00:00	07/26/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

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: L2140027
Report Date: 08/01/21

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.

Sample Receipt

L2140027-02: The collection time was obtained from the container labels.

Volatile Organics

L2140027-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (203%); 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.

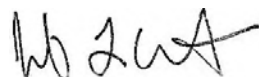
L2140027-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140027-02: 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.

L2140027-02: 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.

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:



Jennifer L. Clements

Title: Technical Director/Representative

Date: 08/01/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-01 D
 Client ID: PB85-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:00
 Date Received: 07/26/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/21 21:09
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	4
Benzene	ND		mg/kg	0.17	0.056	4
Toluene	ND		mg/kg	0.33	0.18	4
Ethylbenzene	ND		mg/kg	0.33	0.047	4
Isopropylbenzene	12.		mg/kg	0.33	0.036	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.67	0.065	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.67	0.11	4
Naphthalene	0.95	J	mg/kg	1.3	0.22	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	203	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-02
 Client ID: PB85-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:25
 Date Received: 07/26/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/28/21 20:18
 Analyst: AJK
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	ND		mg/kg	0.039	0.013	1
Toluene	ND		mg/kg	0.078	0.042	1
Ethylbenzene	ND		mg/kg	0.078	0.011	1
Isopropylbenzene	0.28		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.16	0.026	1
Naphthalene	0.28	J	mg/kg	0.31	0.050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	177	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-03
 Client ID: FB-210726
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 15:00
 Date Received: 07/26/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Field Blank
 Analytical Method: 1,8260C
 Analytical Date: 07/29/21 10:30
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-04
 Client ID: TB-210726
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/23/21 00:00
 Date Received: 07/26/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Trip Blank (Aqueous)
 Analytical Method: 1,8260C
 Analytical Date: 07/29/21 10:53
 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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/21 13:37
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1529146-5					
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	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/29/21 08:32
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-04 Batch: WG1529619-5					
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
Naphthalene	0.23	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140027

Project Number: 200.00135.005.03

Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1529146-3 WG1529146-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	86		85		70-130	1		30
Toluene	87		86		70-130	1		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	98		97		70-130	1		30
1,3,5-Trimethylbenzene	99		99		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30
Naphthalene	93		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	108		107		70-130
4-Bromofluorobenzene	115		114		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140027

Project Number: 200.00135.005.03

Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-04 Batch: WG1529619-3 WG1529619-4								
Methyl tert butyl ether	91		91		63-130	0		20
Benzene	99		100		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	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
Naphthalene	77		81		70-130	5		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		95		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140027**Project Number:** 200.00135.005.03**Report Date:** 08/01/21**SAMPLE RESULTS**

Lab ID: L2140027-01

Date Collected: 07/26/21 14:00

Client ID: PB85-15-SS01

Date Received: 07/26/21

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	-	07/27/21 10:51	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2140027

Project Number: 200.00135.005.03

Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-02

Date Collected: 07/26/21 14:25

Client ID: PB85-17-SS01

Date Received: 07/26/21

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	76.0		%	0.100	NA	1	-	07/27/21 10:51	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2140027

Report Date: 08/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1528265-1 QC Sample: L2139980-01 Client ID: DUP Sample						
Solids, Total	81.6	82.7	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140027**Project Number:** 200.00135.005.03**Report Date:** 08/01/21**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(*)
L2140027-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-01B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-02B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-03A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03C	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-03E	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

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: L2140027
Report Date: 08/01/21

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: L2140027
Report Date: 08/01/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140027

Project Number: 200.00135.005.03

Report Date: 08/01/21

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-Terpeneol

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-Terpeneol; 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



Westborough, MA
TEL: 508-898-8220
FAX: 508-898-8193

Mansfield, MA
TEL: 508-822-8300
FAX: 508-822-3288

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: 07/27/21

ALPHA Job #: 210027

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

Report Information

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:

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										SAMPLE HANDLING	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 (4)	
40027-01	PB85-15-5501	7/26	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"/>	<input type="checkbox"/>	4
-02	PB85-17-5501	7/26	142	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"/>	4
-03	FD-210726	7/26	1500	W	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"/>	5
-04	TB-210726	7/26		W		<input type="checkbox"/>	<input 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"/>	4

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-
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>	7/26/21 15:29	<i>[Signature]</i> AAL	7/26/21 15:29
<i>[Signature]</i>	7/26/21 15:24	<i>[Signature]</i> AAL	7/26/21 17:29
<i>[Signature]</i>	7/26/21	<i>[Signature]</i> AAL	7/26/21 22:30
<i>[Signature]</i> AAL	7/27/21 02:25	<i>[Signature]</i>	7/27/21 02:25

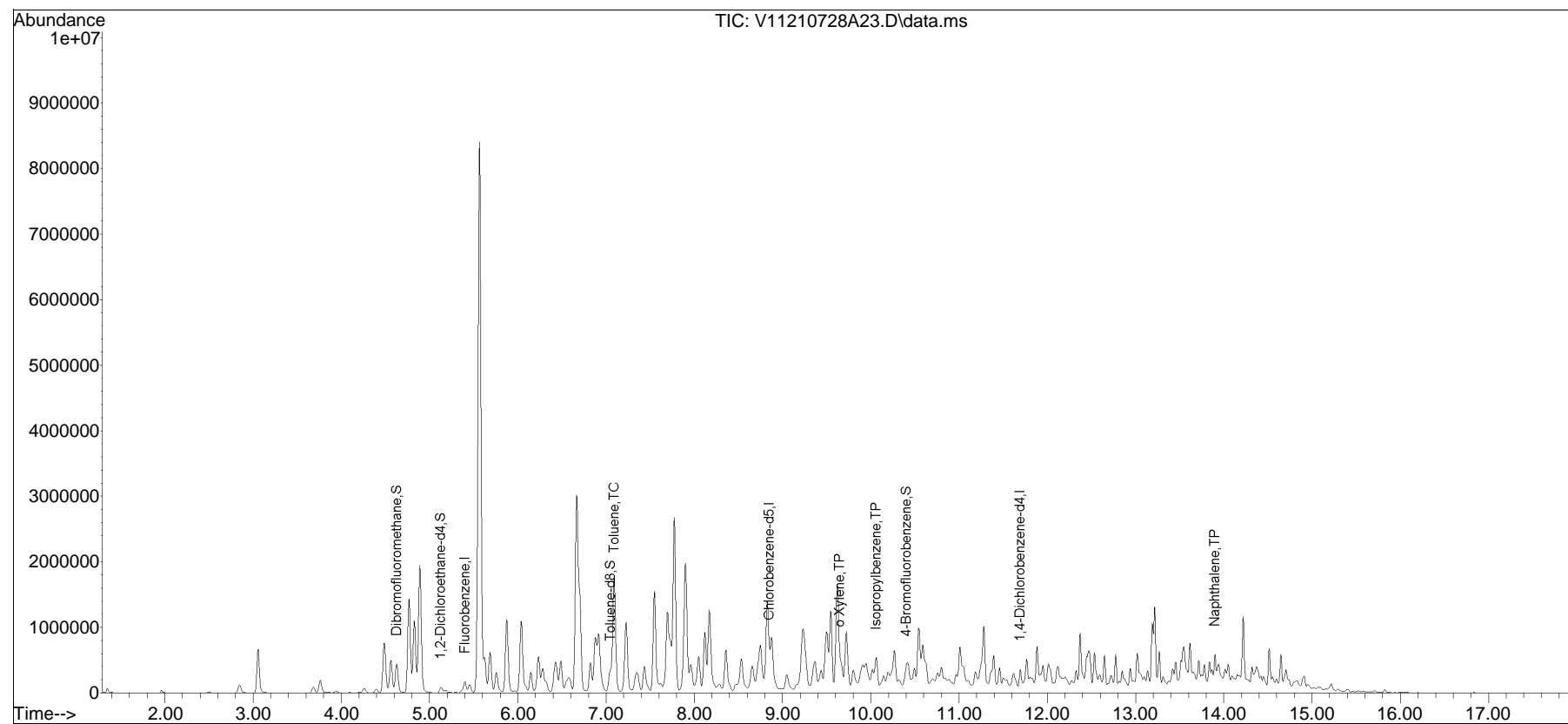
FORM NO. 05-01(142)
Rev. 5-2011-02

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A23.D
Acq On : 28 Jul 2021 09:09 pm
Operator : VOA111:AJK
Sample : L2140027-01D,31H,4.26,5,0.025,,A
Misc : WG1529146,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 28 21:48:24 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•

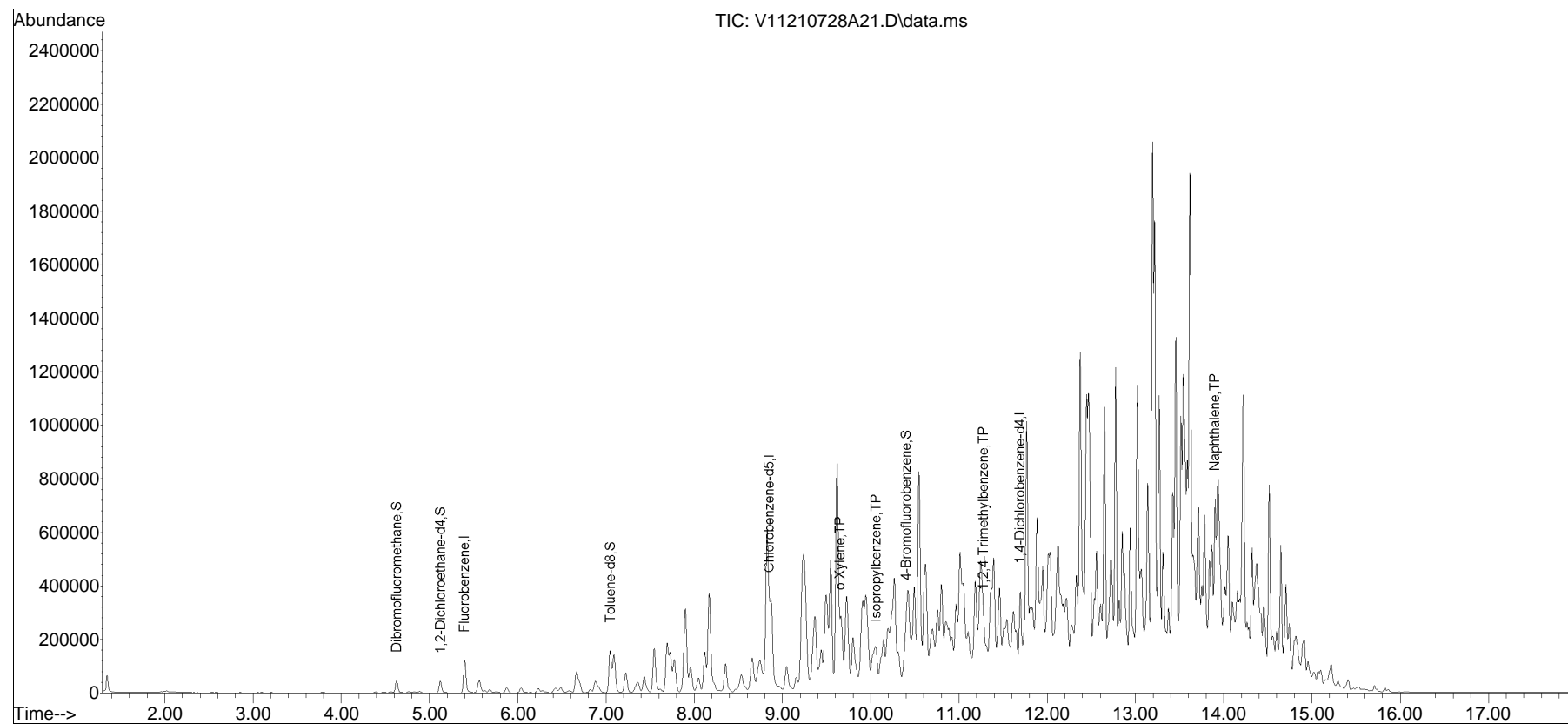


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A21.D
Acq On : 28 Jul 2021 08:18 pm
Operator : VOA111:AJK
Sample : L2140027-02,31H,5.31,5,0.100,,A
Misc : WG1529146,ICAL18049
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 28 21:47:27 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•





ANALYTICAL REPORT

Lab Number:	L2140301
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:	08/06/21

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: L2140301

Report Date: 08/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140301-01	PB37-17-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:05	07/27/21
L2140301-02	PB37-16-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:10	07/27/21
L2140301-03	PB37-09-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:10	07/27/21
L2140301-04	PB37-11-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:30	07/27/21
L2140301-05	PB37-10-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:45	07/27/21
L2140301-06	PB37-15-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:55	07/27/21
L2140301-07	PB37-12-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:20	07/27/21
L2140301-08	PB37-06-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:30	07/27/21
L2140301-09	PB37-03-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:50	07/27/21
L2140301-10	PB37-02-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:55	07/27/21
L2140301-11	PB37-01-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:05	07/27/21
L2140301-12	PB37-05-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:25	07/27/21
L2140301-13	FB-210727	WATER	PHILADELPHIA, PA	07/27/21 15:00	07/27/21
L2140301-14	TB-210727	WATER	PHILADELPHIA, PA	07/27/21 00:00	07/27/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

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: L2140301
Report Date: 08/06/21

Case Narrative (continued)

Report Submission

August 06, 2021: This final report includes the results of all requested analyses.

August 03, 2021: 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.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics

L2140301-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (492%); 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.

L2140301-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140301-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (222%); 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.

L2140301-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); 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.

L2140301-03: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

L2140301-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Case Narrative (continued)

chromatogram is included as an attachment to this report.

L2140301-05: 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.

L2140301-05: 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.

L2140301-06: 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.

L2140301-06: 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.

L2140301-07: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (140%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) 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.

L2140301-08: The surrogate recoveries are outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.

L2140301-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (133%); 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.

L2140301-09D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); 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.

L2140301-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (201%) 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: L2140301
Report Date: 08/06/21

Case Narrative (continued)

L2140301-10: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (163%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) 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.

L2140301-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); 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:  Tiffani Morrissey

Title: Technical Director/Representative

Date: 08/06/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-01
 Client ID: PB37-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 10:05
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 10:23
 Analyst: JC
 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	0.00040	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00078	J	mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0028		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0020		mg/kg	0.0020	0.00057	1
o-Xylene	0.014		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.016		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.0084		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.086		mg/kg	0.0020	0.00034	1
Naphthalene	0.0017	J	mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	492	Q	70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-02 D
 Client ID: PB37-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 10:10
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 07:26
 Analyst: MV
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.043	J	mg/kg	0.12	0.041	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	ND		mg/kg	0.25	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.072	4
Ethylbenzene	0.18	J	mg/kg	0.25	0.035	4
p/m-Xylene	ND		mg/kg	0.50	0.14	4
o-Xylene	ND		mg/kg	0.25	0.072	4
Xylenes, Total	ND		mg/kg	0.25	0.072	4
Isopropylbenzene	6.0		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.50	0.083	4
Naphthalene	0.21	J	mg/kg	0.99	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	222	Q	70-130
Dibromofluoromethane	92		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-03
 Client ID: PB37-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:10
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 10:48
 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	0.0024	0.00024	1
Benzene	0.0015		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.0047		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.00056	J	mg/kg	0.0012	0.00017	1
p/m-Xylene	0.0038		mg/kg	0.0024	0.00068	1
o-Xylene	0.00052	J	mg/kg	0.0012	0.00036	1
Xylenes, Total	0.0043	J	mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.0092		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0042		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0035		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	150	Q	70-130
Dibromofluoromethane	65	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-04
 Client ID: PB37-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:30
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 09:09
 Analyst: MV
 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	0.00060	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	0.00050	J	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
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	169	Q	70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-05
 Client ID: PB37-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:45
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 08:44
 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	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.074		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.16		mg/kg	0.056	0.0079	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.037	J	mg/kg	0.056	0.016	1
Xylenes, Total	0.14	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.88		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.059	J	mg/kg	0.11	0.019	1
Naphthalene	2.1		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	83		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
 Client ID: PB37-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:55
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 09:33
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00086	J	mg/kg	0.0025	0.00025	1
Benzene	0.0053		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	0.0037		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.030		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.021		mg/kg	0.0025	0.00071	1
o-Xylene	0.0020		mg/kg	0.0013	0.00037	1
Xylenes, Total	0.023		mg/kg	0.0013	0.00037	1
Isopropylbenzene	0.042		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.029		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00042	1
Naphthalene	0.22		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	86		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
 Client ID: PB37-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:55
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 11:39
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.042	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.084	0.022	1
Toluene	ND		mg/kg	0.084	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.042	0.025	1
Ethylbenzene	0.046	J	mg/kg	0.084	0.012	1
p/m-Xylene	0.088	J	mg/kg	0.17	0.047	1
o-Xylene	ND		mg/kg	0.084	0.024	1
Xylenes, Total	0.088	J	mg/kg	0.084	0.024	1
Isopropylbenzene	0.027	J	mg/kg	0.084	0.0092	1
1,3,5-Trimethylbenzene	0.018	J	mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.17	0.028	1
Naphthalene	0.14	J	mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
 Client ID: PB37-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:20
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 12:29
 Analyst: JC
 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	0.00021	1
Benzene	0.13		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	1.2	E	mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.22		mg/kg	0.0010	0.00014	1
p/m-Xylene	1.2	E	mg/kg	0.0020	0.00058	1
o-Xylene	0.38		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.12		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.37	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.018		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
 Client ID: PB37-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:20
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 12:05
 Analyst: JC
 Percent Solids: 80%

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	0.26		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	2.0		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.23		mg/kg	0.072	0.010	1
p/m-Xylene	0.97		mg/kg	0.14	0.040	1
o-Xylene	0.29		mg/kg	0.072	0.021	1
Xylenes, Total	1.3		mg/kg	0.072	0.021	1
Isopropylbenzene	0.033	J	mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.47		mg/kg	0.14	0.024	1
Naphthalene	0.19	J	mg/kg	0.29	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-08
 Client ID: PB37-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:30
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 10:48
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0085		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0067		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00034	1
Ethylbenzene	0.0040		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.063		mg/kg	0.0024	0.00066	1
o-Xylene	0.0058		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.069		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.018		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.027		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0091		mg/kg	0.0024	0.00039	1
Naphthalene	ND		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	133	Q	70-130
Dibromofluoromethane	67	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09 D2
 Client ID: PB37-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:50
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 11:13
 Analyst: JC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	65.		mg/kg	0.47	0.25	10
p/m-Xylene	62.		mg/kg	0.94	0.26	10
Xylenes, Total	85.		mg/kg	0.094	0.027	10
1,2,4-Trimethylbenzene	32.		mg/kg	0.94	0.16	10

Toluene	65.		mg/kg	0.47	0.25	10
p/m-Xylene	62.		mg/kg	0.94	0.26	10
Xylenes, Total	85.		mg/kg	0.094	0.027	10
1,2,4-Trimethylbenzene	32.		mg/kg	0.94	0.16	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09 D
 Client ID: PB37-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:50
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 08:18
 Analyst: MV
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.19	0.019	2
Benzene	0.80		mg/kg	0.047	0.016	2
1,2-Dichloroethane	ND		mg/kg	0.094	0.024	2
Toluene	63.	E	mg/kg	0.094	0.051	2
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	2
Ethylbenzene	15.		mg/kg	0.094	0.013	2
p/m-Xylene	60.	E	mg/kg	0.19	0.052	2
o-Xylene	23.		mg/kg	0.094	0.027	2
Isopropylbenzene	1.4		mg/kg	0.094	0.010	2
1,3,5-Trimethylbenzene	10.		mg/kg	0.19	0.018	2
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.19	0.031	2
Naphthalene	1.8		mg/kg	0.37	0.061	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	201	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
 Client ID: PB37-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:55
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 11:38
 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	ND		mg/kg	0.0022	0.00022	1
Benzene	0.0023		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.0014		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.19		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.25		mg/kg	0.0022	0.00063	1
o-Xylene	0.0066		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.26		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.048		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.090		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.69	E	mg/kg	0.0022	0.00037	1
Naphthalene	0.099		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	81		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
 Client ID: PB37-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:55
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 12:31
 Analyst: JC
 Percent Solids: 81%

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	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.24		mg/kg	0.069	0.0098	1
p/m-Xylene	0.37		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.069	0.020	1
Xylenes, Total	0.37		mg/kg	0.069	0.020	1
Isopropylbenzene	0.071		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-11
 Client ID: PB37-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:05
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 09:58
 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	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0016	J	mg/kg	0.0022	0.00062	1
o-Xylene	0.00046	J	mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0021	J	mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0036		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.00068	J	mg/kg	0.0022	0.00037	1
Naphthalene	0.0024	J	mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	151	Q	70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
 Client ID: PB37-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:25
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 07/30/21 14:11
 Analyst: JC
 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	0.14	0.014	1
Benzene	1.3		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	9.8		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	3.8		mg/kg	0.072	0.010	1
p/m-Xylene	14.		mg/kg	0.14	0.040	1
o-Xylene	4.7		mg/kg	0.072	0.021	1
Xylenes, Total	19.		mg/kg	0.072	0.021	1
Isopropylbenzene	0.32		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	2.8		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	10.		mg/kg	0.14	0.024	1
Naphthalene	1.9		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-13
 Client ID: FB-210727
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 15:00
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/29/21 16:31
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/29/21 14:55

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: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-13
 Client ID: FB-210727
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 15:00
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 03:21
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-14
 Client ID: TB-210727
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 00:00
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 07/29/21 16:37
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 07/29/21 14:55

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: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-14
 Client ID: TB-210727
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 00:00
 Date Received: 07/27/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 08/02/21 02:55
 Analyst: NLK

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
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/29/21 16:06
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 13-14 Batch: WG1529463-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-5					
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	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-07,09-10 Batch: WG1530505-10					
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	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,05,09,12 Batch: WG1530505-5					
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	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 08/01/21 18:58
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 13-14 Batch: WG1530605-5					
1,2-Dichloroethane	ND		ug/l	0.50	0.13

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08 Batch: WG1530896-5					
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	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140301

Project Number: 200.00135.005.03

Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 13-14 Batch: WG1529463-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-3 WG1530504-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,05,09,12 Batch: WG1530505-3 WG1530505-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-07,09-10 Batch: WG1530505-8 WG1530505-9									
Methyl tert butyl ether	96		99		66-130		3		30
Benzene	87		85		70-130		2		30
1,2-Dichloroethane	88		89		70-130		1		30
Toluene	95		92		70-130		3		30
1,2-Dibromoethane	90		91		70-130		1		30
Ethylbenzene	102		99		70-130		3		30
p/m-Xylene	94		92		70-130		2		30
o-Xylene	95		92		70-130		3		30
Isopropylbenzene	114		110		70-130		4		30
1,3,5-Trimethylbenzene	112		110		70-130		2		30
1,2,4-Trimethylbenzene	112		110		70-130		2		30
Naphthalene	100		104		70-130		4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 13-14 Batch: WG1530605-3 WG1530605-4								
1,2-Dichloroethane	95		94		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		90		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	95		98		70-130
Dibromofluoromethane	104		103		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140301

Project Number: 200.00135.005.03

Report Date: 08/06/21

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 Batch: WG1530896-3 WG1530896-4								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	87		85		70-130	2		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	95		92		70-130	3		30
1,2-Dibromoethane	90		91		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	95		92		70-130	3		30
Isopropylbenzene	114		110		70-130	4		30
1,3,5-Trimethylbenzene	112		110		70-130	2		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30
Naphthalene	100		104		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-01

Date Collected: 07/27/21 10:05

Client ID: PB37-17-SS01

Date Received: 07/27/21

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	80.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-02

Date Collected: 07/27/21 10:10

Client ID: PB37-16-SS01

Date Received: 07/27/21

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	81.4		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-03

Date Collected: 07/27/21 11:10

Client ID: PB37-09-SS01

Date Received: 07/27/21

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	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-04

Date Collected: 07/27/21 11:30

Client ID: PB37-11-SS01

Date Received: 07/27/21

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	82.9		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-05

Date Collected: 07/27/21 11:45

Client ID: PB37-10-SS01

Date Received: 07/27/21

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	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2140301

Project Number: 200.00135.005.03

Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06

Date Collected: 07/27/21 11:55

Client ID: PB37-15-SS01

Date Received: 07/27/21

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	72.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
 Client ID: PB37-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:20
 Date Received: 07/27/21
 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	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2140301

Project Number: 200.00135.005.03

Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-08

Date Collected: 07/27/21 12:30

Client ID: PB37-06-SS01

Date Received: 07/27/21

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	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09
Client ID: PB37-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:50
Date Received: 07/27/21
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	94.6		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**SAMPLE RESULTS**

Lab ID: L2140301-10

Date Collected: 07/27/21 13:55

Client ID: PB37-02-SS01

Date Received: 07/27/21

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	80.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-11
 Client ID: PB37-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:05
 Date Received: 07/27/21
 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	81.3		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
Client ID: PB37-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:25
Date Received: 07/27/21
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	87.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2140301

Report Date: 08/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1528692-1 QC Sample: L2140301-01 Client ID: PB37-17-SS01						
Solids, Total	80.2	79.7	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**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(*)
L2140301-01A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-01B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-01E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-02A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-02B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-02E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-03A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-03B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-03E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-04A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-04B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-04E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-05A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-05B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-05C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-05E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-06A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-06B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-06E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-07A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-07B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-07E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-08A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-08B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-08E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-09A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-09B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-09E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-10A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-10B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-10E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2140301**Project Number:** 200.00135.005.03**Report Date:** 08/06/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-11A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-11B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 10:15	PA-8260HLW(14)
L2140301-11C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-11E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-12A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-12B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-12E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-13A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13C	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13E	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13F	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-14A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14C	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-14D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

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: L2140301
Report Date: 08/06/21

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: L2140301
Report Date: 08/06/21

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.

Project Name: PHILADELPHIA REFINERY

Lab Number: L2140301

Project Number: 200.00135.005.03

Report Date: 08/06/21

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-Terpeneol

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-Terpeneol; 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 2

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:

Westborough, MA
TEL: 508-898-9220
FAX: 508-868-9193

Mansfield, MA
TEL: 508-822-9300
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 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

Date Rec'd in Lab: 7/28/21

ALPHA Job #: L2140301

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

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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 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																	
40301 -01	PB37-17-5501	7/27	1005	S	TS	<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		
-02	PB37-16-5501	↓	1010	↓	↓	<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"/>				
-03	PB37-09-5501		1110			<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"/>	
-04	PB37-11-5501		1130			<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"/>	
-05	PB37-10-5501		1145			<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"/>	
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-08	PB37-06-5501		1230			<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"/>	
-09	PB37-03-5501		1350			<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"/>	
-10	PB37-02-5501		1355			<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"/>	


Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/27/21 15:28	<i>[Signature]</i>	7/27/21 15:28
<i>[Signature]</i>	7/27/21 15:28	<i>[Signature]</i>	7/27/21 17:10
<i>[Signature]</i>	7/27/21	<i>[Signature]</i>	7/28/21 02:00

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: 01-2011-03 (Rev. 3-2010-02)

CHAIN OF CUSTODY PAGE 2 OF 2



Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-8300
 FAX: 508-898-9193 FAX: 508-822-3288

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: 7/28/21

ALPHA Job #: L2140301

Report Information **Data Deliverables** **Billing Information**

FAX EMAIL Same as Client info PO #: 3894

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

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

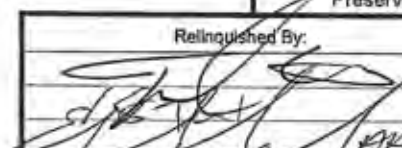
ANALYSIS

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 (1,2)	SAMPLE HANDLING	TOTAL # BOTTLES
Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please specify below)												
<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"/>	Sample Specific Comments	15
<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"/>		5
<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"/>		7
<input type="checkbox"/>	<input 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"/>		4

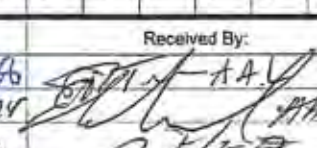
Other Project Specific Requirements/Comments/Detection Limits:

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	Container Type											Preservative	
		Date	Time			G	G	G	-	-	-	-	-	-	-	-		-
40301 - 11	PB37-01-5501	7/27	1405	S	TS	G	G	G	-	-	-	-	-	-	-	-	-	F
- 12	PB37-05-5501		1425	S		G	G	G	-	-	-	-	-	-	-	-	-	F
- 13	FB-210727a		1500	W		G	G	G	-	-	-	-	-	-	-	-	-	F
- 14	TB-210727			W		G	G	G	-	-	-	-	-	-	-	-	-	F

Relinquished By: 

Date/Time: 7/27/21 5:28

Received By: 

Date/Time: 7/27/21 15:28

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.

7/28/21 02:00

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

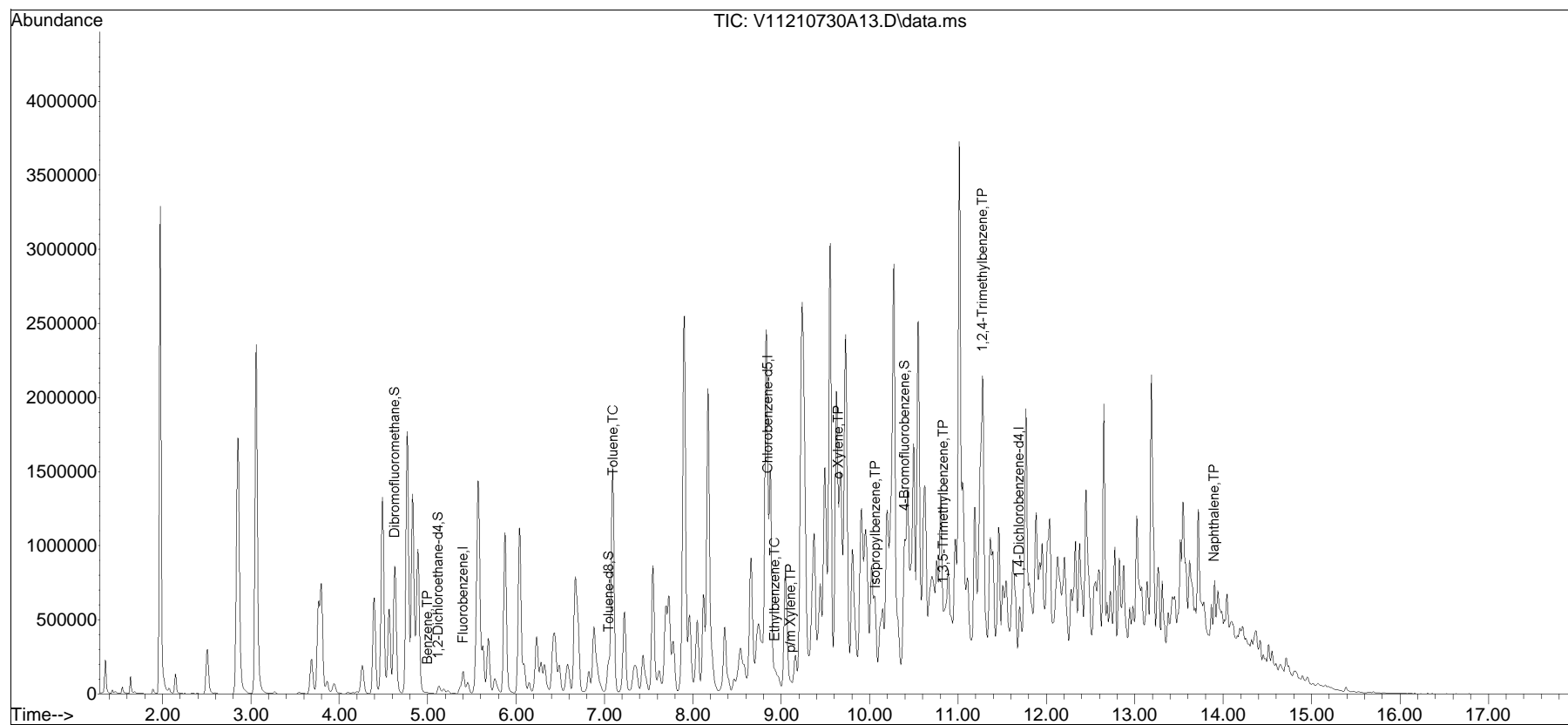
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl 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
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\VOA111\2021\210730A\
Data File : V11210730A13.D
Acq On : 30 Jul 2021 10:23 am
Operator : VOA111:JC
Sample : L2140301-01,31,6.16,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 02 06:24:49 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

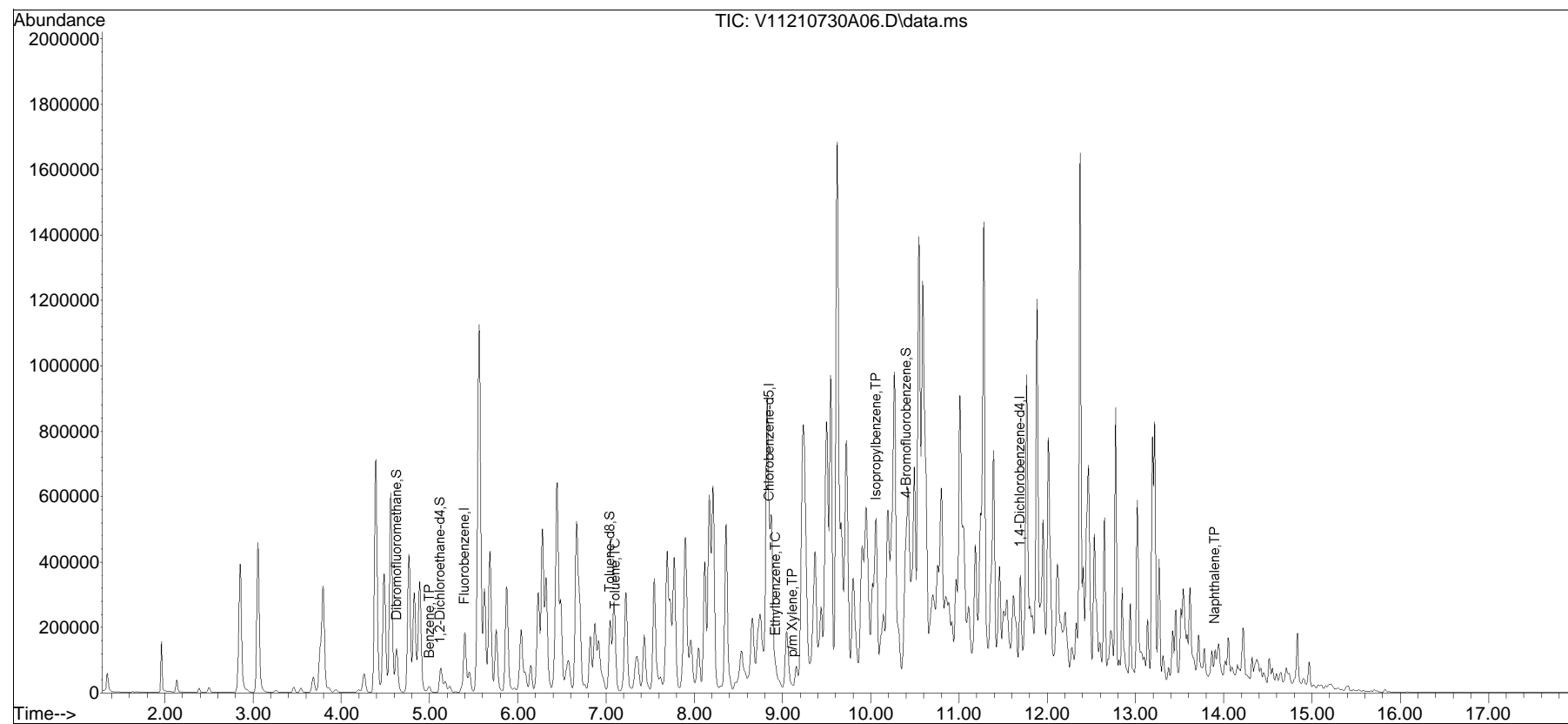


Quantitation Report (QT Reviewed)

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Data File : V11210730A06.D
Acq On : 30 Jul 2021 07:26 am
Operator : VOA111:MV
Sample : L2140301-02D,31H,6.08,5,0.025,,A
Misc : WG1530505,ICAL18049
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 30 09:43:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
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Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

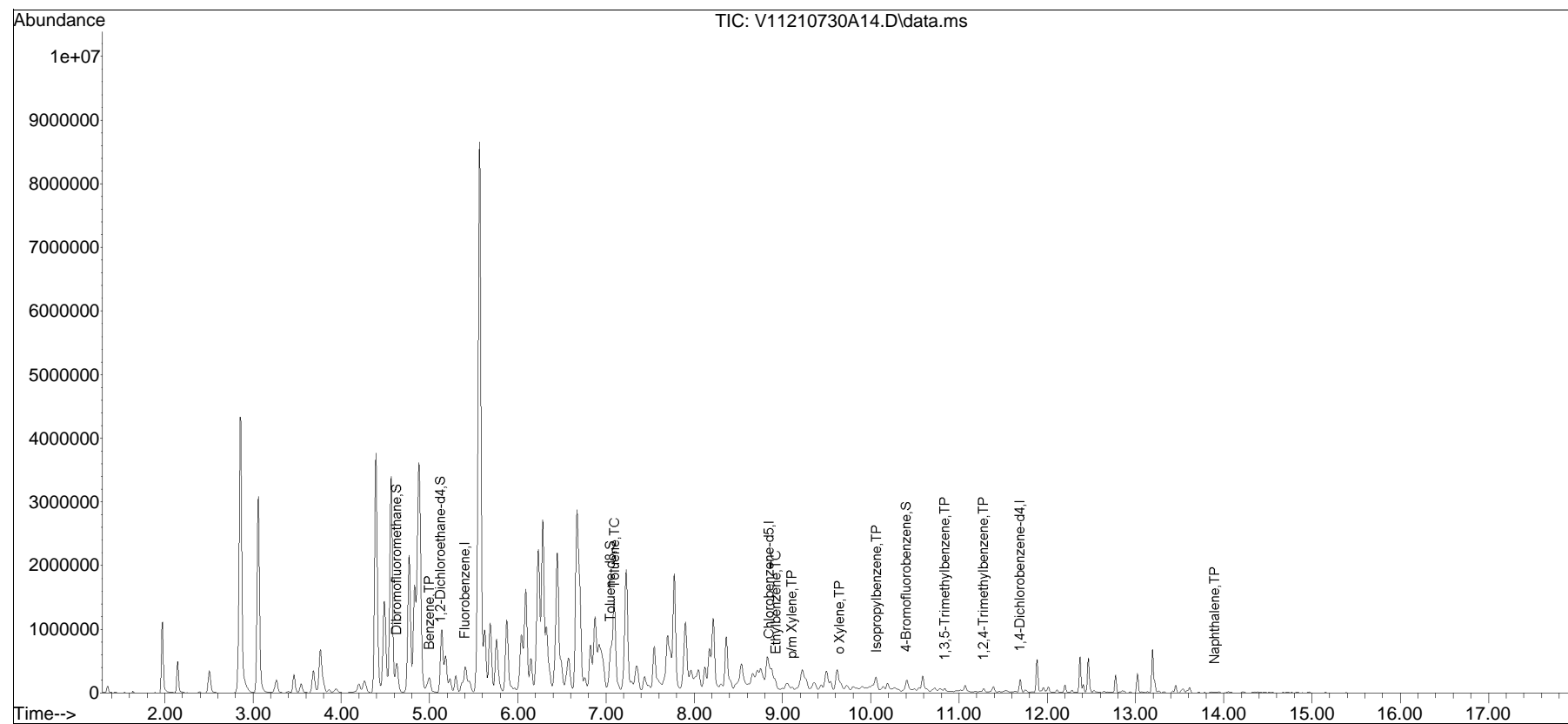


Quantitation Report (QT Reviewed)

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Acq On : 30 Jul 2021 10:48 am
Operator : VOA111:JC
Sample : L2140301-03,31,4.50,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 02 06:25:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
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Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

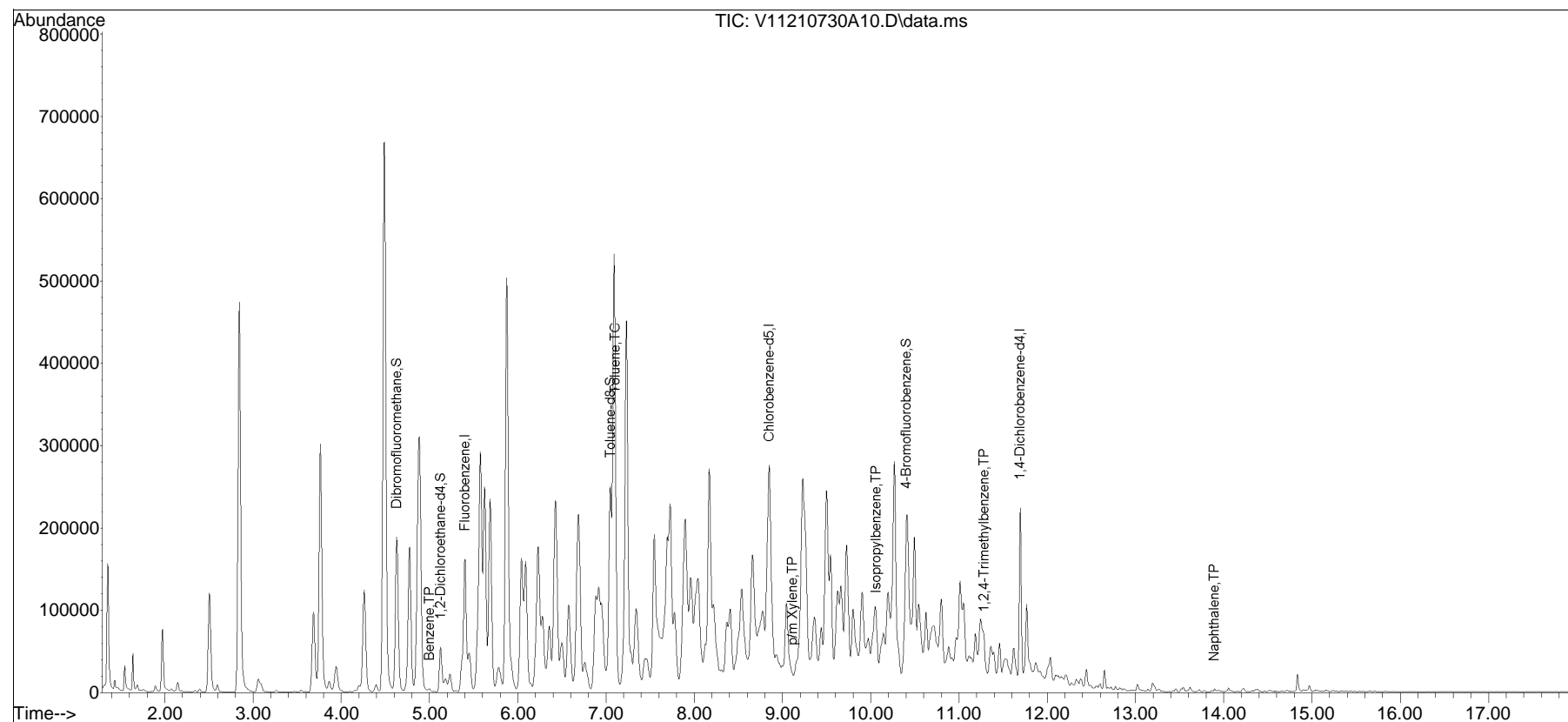


Quantitation Report (QT Reviewed)

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Data File : V11210730A10.D
Acq On : 30 Jul 2021 09:09 am
Operator : VOA111:MV
Sample : L2140301-04,31,5.05,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 30 09:44:42 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

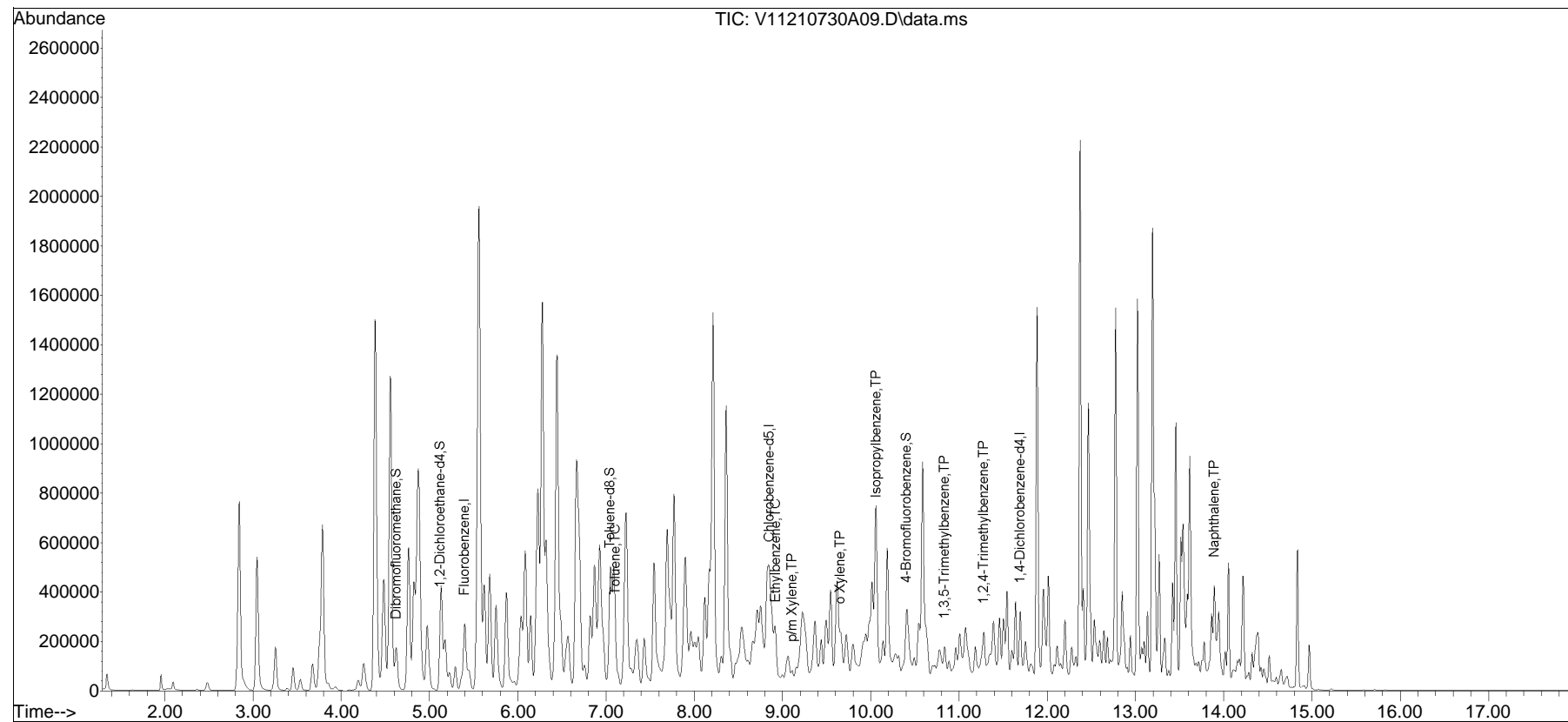


Quantitation Report (QT Reviewed)

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 Data File : V11210730A09.D
 Acq On : 30 Jul 2021 08:44 am
 Operator : VOA111:MV
 Sample : L2140301-05,31H,5.40,5,0.100,,A
 Misc : WG1530505,ICAL18049
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 30 09:44:15 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jun 09 18:48:01 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

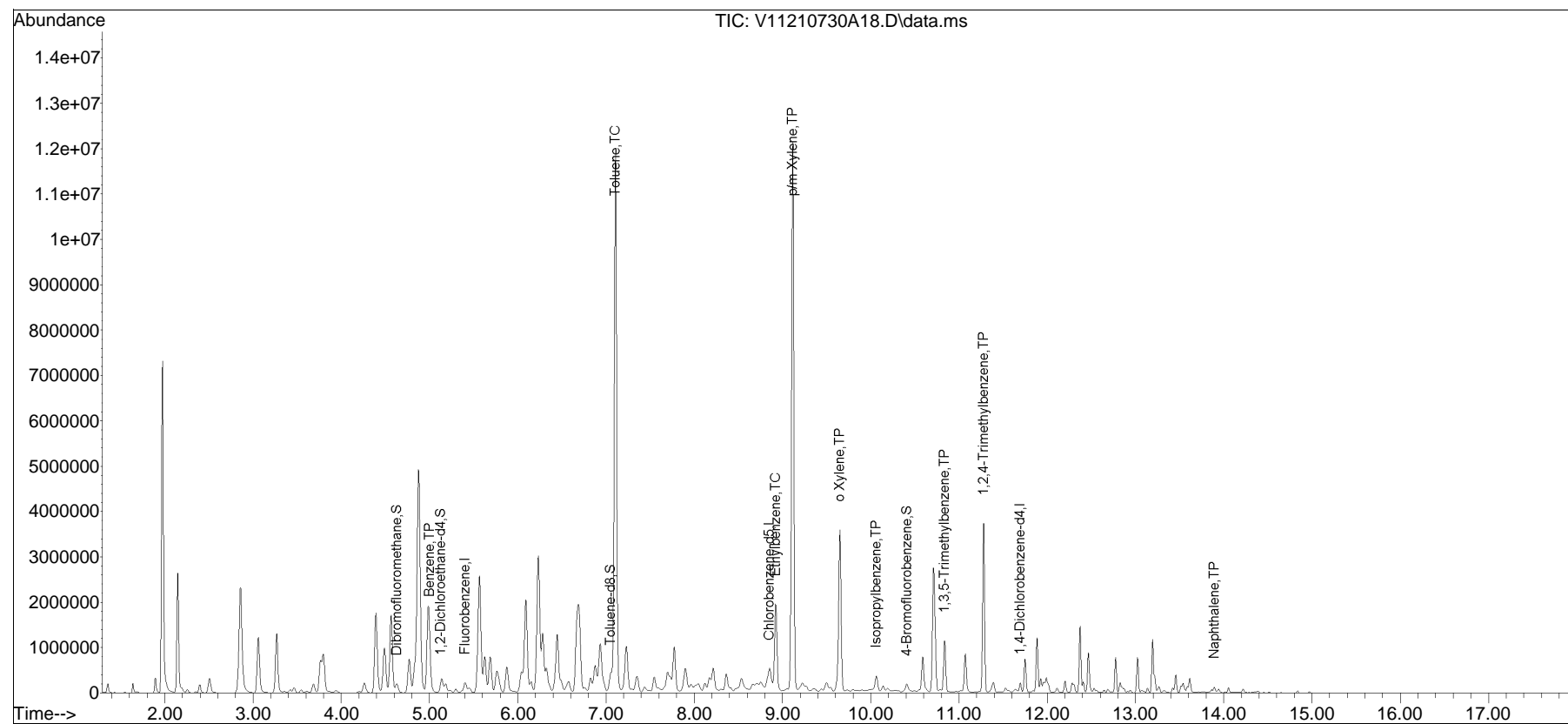


Quantitation Report (QT Reviewed)

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Data File : V11210730A18.D
Acq On : 30 Jul 2021 12:29 pm
Operator : VOA111:JC
Sample : L2140301-07,31,6.05,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 02 06:26:55 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

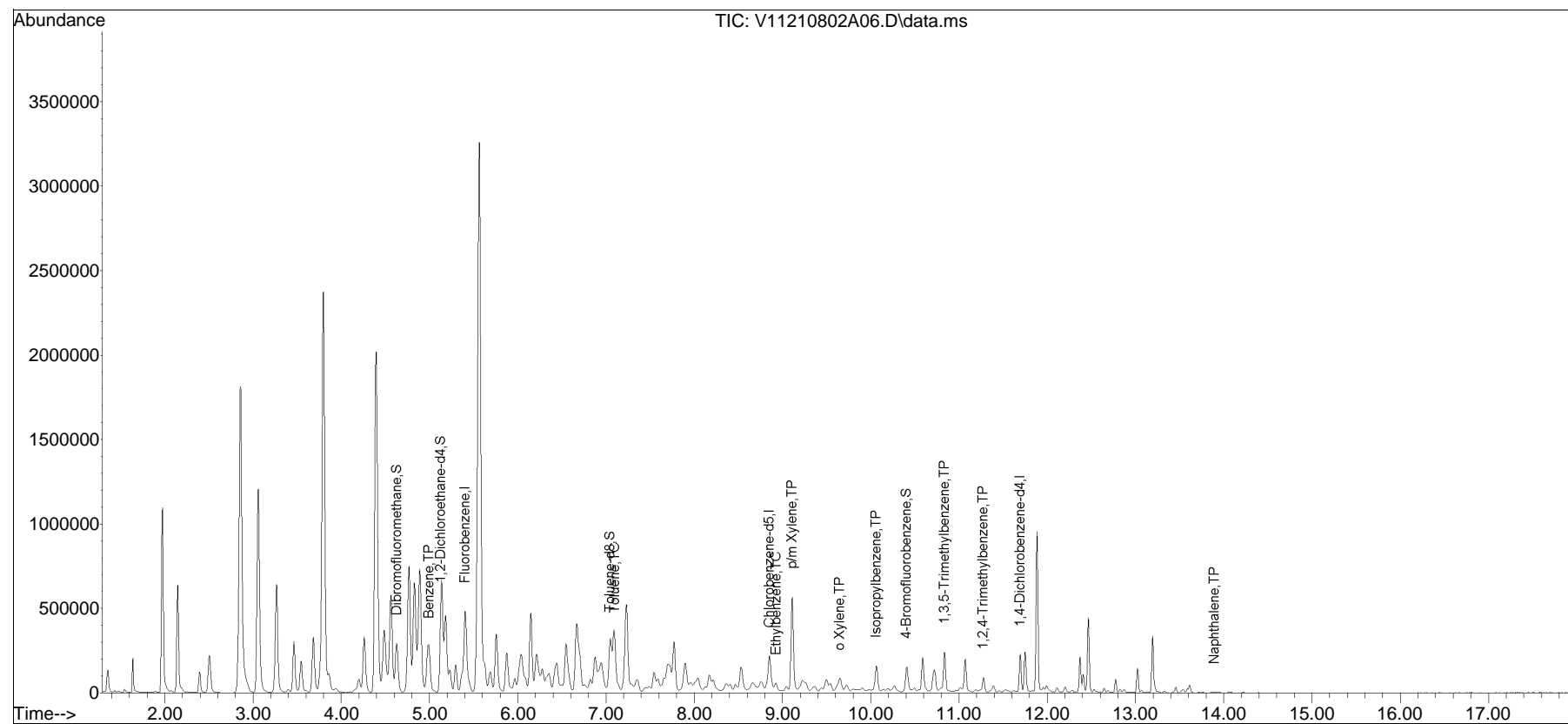


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210802A\
Data File : V11210802A06.D
Acq On : 02 Aug 2021 10:48 am
Operator : VOA111:JC
Sample : L2140301-08,31,5.06,5,,C
Misc : WG1530896,ICAL18049
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 08:50:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•

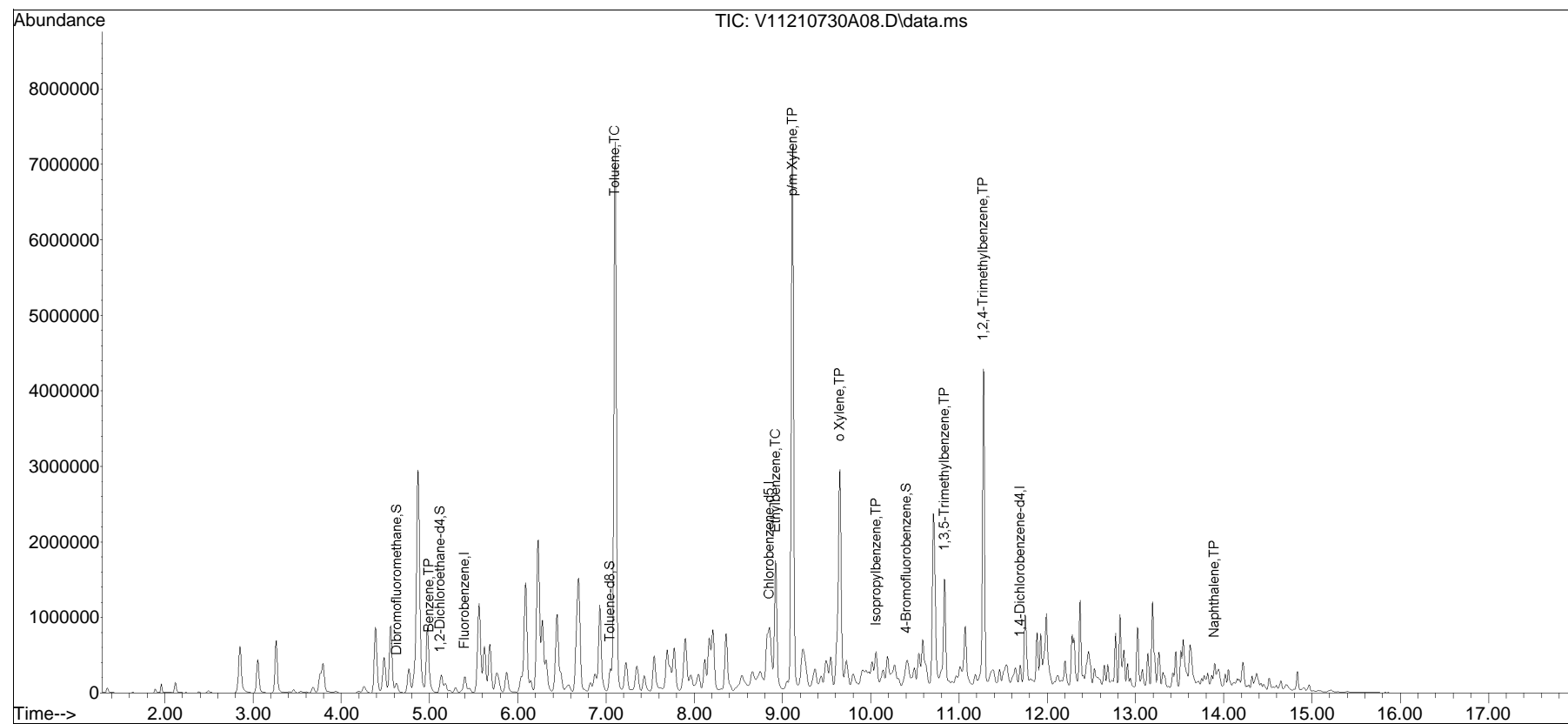


Quantitation Report (QT Reviewed)

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 Data File : V11210730A08.D
 Acq On : 30 Jul 2021 08:18 am
 Operator : VOA111:MV
 Sample : L2140301-09D,31H,6.02,5,0.050,,A
 Misc : WG1530505,ICAL18049
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 02 10:49:29 2021
 Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
 Quant Title : VOLATILES BY GC/MS
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 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

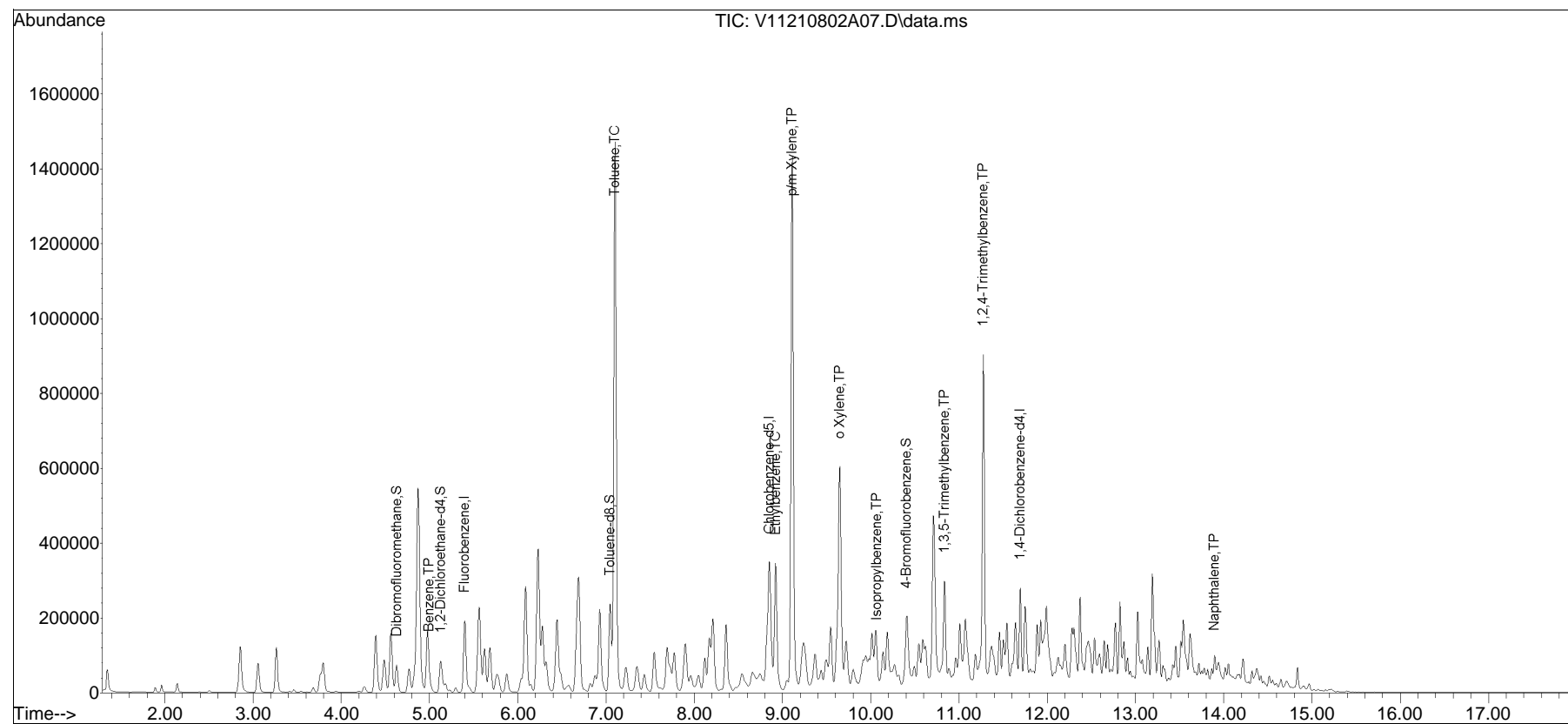


Quantitation Report (QT Reviewed)

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Data File : V11210802A07.D
Acq On : 02 Aug 2021 11:13 am
Operator : VOA111:JC
Sample : L2140301-09D2,31H,6.02,5,0.010,,,A
Misc : WG1530505,ICAL18049
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 08:40:36 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•

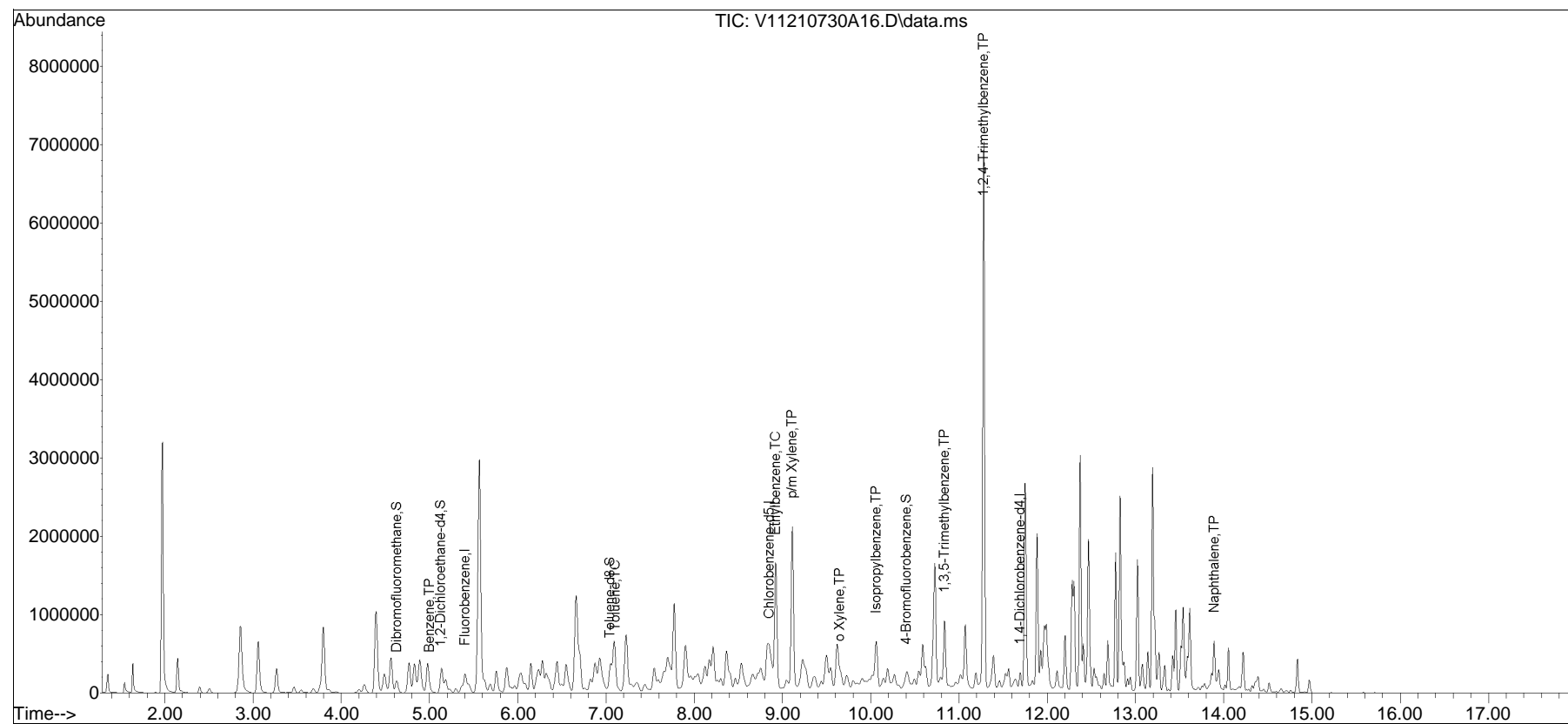


Quantitation Report (QT Reviewed)

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Data File : V11210730A16.D
Acq On : 30 Jul 2021 11:38 am
Operator : VOA111:JC
Sample : L2140301-10,31,5.52,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 02 06:26:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
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Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

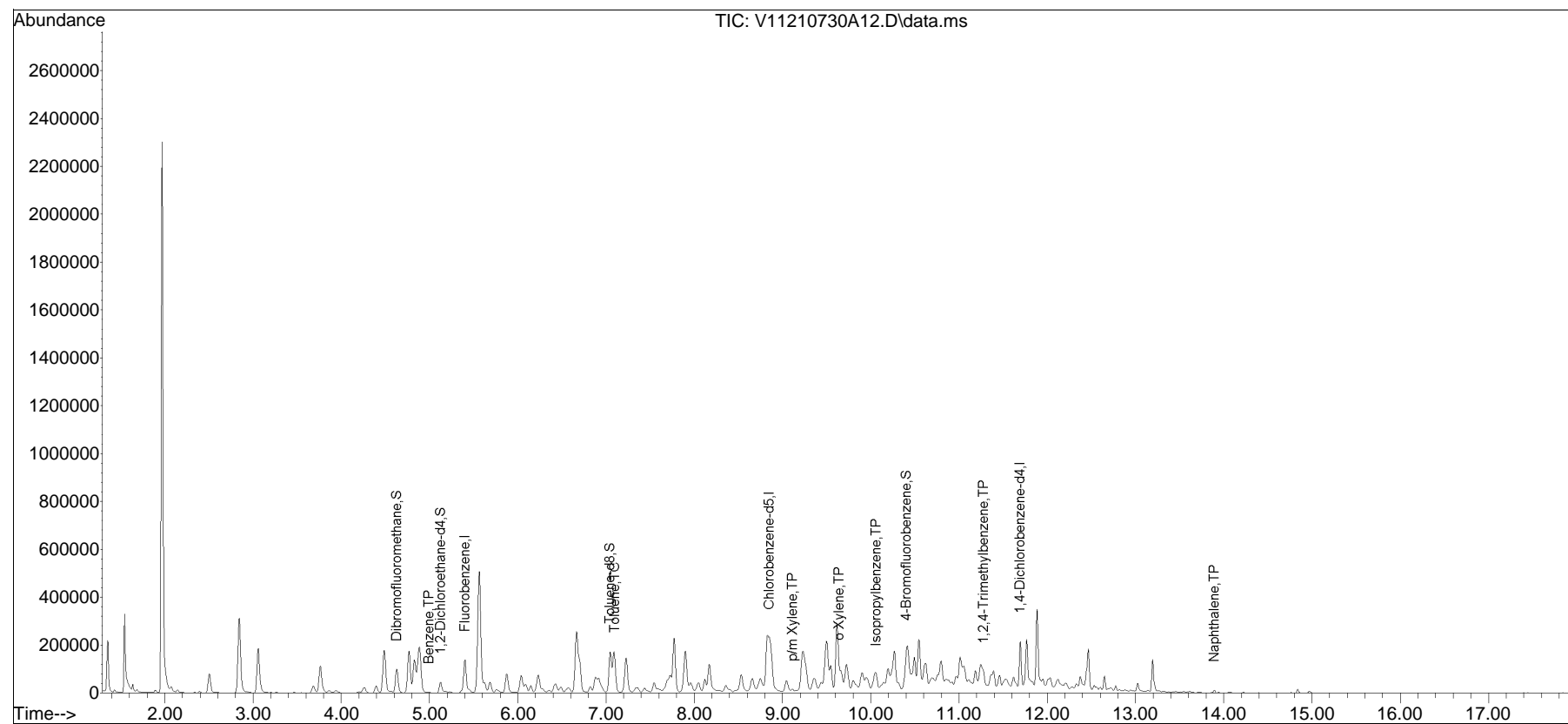


Quantitation Report (QT Reviewed)

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Acq On : 30 Jul 2021 09:58 am
Operator : VOA111:JC
Sample : L2140301-11,31,5.52,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 02 06:07:44 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•





Dayton, NJ

08/06/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2140301

SGS Job Number: JD29089

Sampling Date: 07/27/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walkup Drive
Westborough, MA 01581
subreports@alphalab.com; cromero@alphalab.com

ATTN: Cynthia Romero

Total number of pages in report: 45



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

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SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD29089

Alpha Analytical, PA
Project No: L2140301

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JD29089-1	07/27/21	10:05	07/29/21	SO	Soil	PB37-17-SS01
JD29089-2	07/27/21	10:10	07/29/21	SO	Soil	PB37-16-SS01
JD29089-3	07/27/21	11:10	07/29/21	SO	Soil	PB37-09-SS01
JD29089-4	07/27/21	11:30	07/29/21	SO	Soil	PB37-11-SS01
JD29089-5	07/27/21	11:45	07/29/21	SO	Soil	PB37-10-SS01
JD29089-6	07/27/21	11:55	07/29/21	SO	Soil	PB37-15-SS01
JD29089-7	07/27/21	12:20	07/29/21	SO	Soil	PB37-12-SS01
JD29089-8	07/27/21	12:30	07/29/21	SO	Soil	PB37-06-SS01
JD29089-9	07/27/21	13:50	07/29/21	SO	Soil	PB37-03-SS01
JD29089-10	07/27/21	13:55	07/29/21	SO	Soil	PB37-02-SS01
JD29089-11	07/27/21	10:05	07/29/21	SO	Soil	PB37-01-SS01
JD29089-12	07/27/21	10:05	07/29/21	SO	Soil	PB37-05-SS01
JD29089-13	07/27/21	15:00	07/29/21	AQ	Field Blank Soil	FB-210727

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD29089-1	PB37-17-SS01					
Lead		1850	12		mg/kg	SW846 6010D
JD29089-2	PB37-16-SS01					
Lead		14.3	2.4		mg/kg	SW846 6010D
JD29089-3	PB37-09-SS01					
Lead		8.7	2.2		mg/kg	SW846 6010D
JD29089-4	PB37-11-SS01					
Lead		2740	12		mg/kg	SW846 6010D
JD29089-5	PB37-10-SS01					
Lead		5.8	2.3		mg/kg	SW846 6010D
JD29089-6	PB37-15-SS01					
Lead		647	2.8		mg/kg	SW846 6010D
JD29089-7	PB37-12-SS01					
Lead		119	2.6		mg/kg	SW846 6010D
JD29089-8	PB37-06-SS01					
Lead		9.4	2.3		mg/kg	SW846 6010D
JD29089-9	PB37-03-SS01					
Lead		61.2	2.2		mg/kg	SW846 6010D
JD29089-10	PB37-02-SS01					
Lead		131	1.6		mg/kg	SW846 6010D
JD29089-11	PB37-01-SS01					
Lead		449	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

JD29089-12 **PB37-05-SS01**

Lead	85.0	2.4			mg/kg	SW846 6010D
------	------	-----	--	--	-------	-------------

JD29089-13 **FB-210727**

No hits reported in this sample.



Dayton, NJ

Section 3



Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-17-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-1	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 80.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1850	12	mg/kg	5	08/04/21	08/05/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50942

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-16-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-2	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 81.4
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	14.3	2.4	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-09-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-3	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 90.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	8.7	2.2	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-11-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-4	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 82.9
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	2740	12	mg/kg	5	08/04/21	08/05/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50942

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-10-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-5	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 90.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	5.8	2.3	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-15-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-6	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 72.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	647	2.8	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-12-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-7	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 80.3
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	119	2.6	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-06-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-8	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 83.9
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	9.4	2.3	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB37-03-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-9	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 94.6
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	61.2	2.2	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

3.10
3

Client Sample ID: PB37-02-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-10	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 80.8
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	131	1.6	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

3.11
3

Client Sample ID: PB37-01-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-11	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 81.3
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	449	2.4	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

3.12
3

Client Sample ID: PB37-05-SS01	Date Sampled: 07/27/21
Lab Sample ID: JD29089-12	Date Received: 07/29/21
Matrix: SO - Soil	Percent Solids: 87.2
Project: Alpha Analytical, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	85.0	2.4	mg/kg	1	08/04/21	08/04/21 ND	SW846 6010D ¹	SW846 3050B ²

(1) Instrument QC Batch: MA50940

(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

3.13
3

Client Sample ID: FB-210727	Date Sampled: 07/27/21
Lab Sample ID: JD29089-13	Date Received: 07/29/21
Matrix: AQ - Field Blank Soil	Percent Solids: n/a
Project: Alpha Analytical, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	08/02/21	08/02/21 ND	SW846 6010D ¹	SW846 3010A ²

(1) Instrument QC Batch: MA50924

(2) Prep QC Batch: MP27798

RL = Reporting Limit



Dayton, NJ

Section 4


4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:


- Chain of Custody

		Subcontract Chain of Custody SLIS - North America 2715, 115-115 Dayton, NJ 08810		JD29089 Alpha Job Number L2140101	
Client Information Client: Alpha Analytical Labs Address: High Voltage Drive Woburn, MA 01591-1018 Phone: 201.316.5017 Email: nyalab@alphalab.com		Project Information Project Location: PA Project Manager: Nadine Yalton Laboratory Name: Alpha Analytical Labs Due Date: (Date/Year)		Regulatory Requirements State/Federal Program: Regulatory Criteria: Project Spec: (C) (See comments in Job Report)	
Reference: following Alpha, Inc. together on final report (See notes) L2140101			Report to: (Date Method Blank) L2S+L2SB		
Additional Comments: Send all email reports to subreports@alphalab.com					
Lab ID	Chain ID	Collection Date/Time	Sample Matrix	Analysis	Batch #/C
1	PHS116-5501	01-27-2010 09:05	SLC	Lead, cad	EBS 72 1736
2	PHS116-5501	01-27-2010 09:10	SLC	Lead, cad	
3	PHS116-5501	01-27-2010 09:10	SLC	Lead, cad	
4	PHS116-5501	01-27-2010 09:30	SLC	Lead, cad	
5	PHS116-5501	01-27-2010 09:35	SLC	Lead, cad	
6	PHS116-5501	01-27-2010 09:35	SLC	Lead, cad	
7	PHS116-5501	01-27-2010 09:30	SLC	Lead, cad	
8	PHS116-5501	01-27-2010 09:30	SLC	Lead, cad	
9	PHS116-5501	01-27-2010 09:30	SLC	Lead, cad	
RECEIVED BY: <u>PA</u>		Date/Time: <u>1/28/10</u>		Received By: <u>[Signature]</u>	
RECEIVED BY: <u>[Signature]</u>		Date/Time: <u>1/28/10</u>		Received By: <u>[Signature]</u>	
RECEIVED BY: <u>[Signature]</u>		Date/Time: <u>1/28/10</u>		Received By: <u>[Signature]</u>	
Form No: AL-subcc					

4.1
4

2/1/10

JD29089: Chain of Custody
Page 1 of 4

		Subcontract Chain of Custody USA - North America 2275 US-120 Dayton, NJ 08810		702-9089 Alpha Job Number L2140301	
Client Information Client: Alpha Analytical Labs Address: Fifth Water Drive Wrentham, MA 01541-1012 Phone: 508 817 8017 Email: myking@alphalab.com		Project Information Project Location: PA Project Manager: Nadine Hayes Location: 1000 Commonwealth Blvd Due Date: Deliverables:		Regulatory Requirements/Reference Limits Total Federal Programs: Regulatory Clients:	
Project Specific Requirements/Reference Limits/Additional Info:					
Reference following Alpha Job Number on final report/submitables: L2140301			Report to include Method Blank: L2510350		
Additional Comments: Send all results/reports to subresponse@alphalab.com					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	By/Of
10	9901-07-5901	17 27:17 13 35	SOI	Total Lead	
11	9901-07-5901	17 27:21 13 35	SOI	Total Lead	
12	9901-07-5901	17 27:27 13 35	SOI	Total Lead	
Relinquished By:		Date/Time	Received By:		Date/Time:
<i>[Signature]</i>		7/25/12 11:20	<i>[Signature]</i>		7/25/12 11:20
<i>[Signature]</i>		7/25/12 01:20	<i>[Signature]</i>		7/25/12 01:20

4.1
4

0 30 12

JD29089: Chain of Custody

Page 2 of 4

SGS Sample Receipt Summary

Job Number: JD29089

Client: ALPHA ANALYTICAL

Project: L2140301

Date / Time Received: 7/29/2021 8:02:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	_____		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s: _____ pH 1-12: 212820 _____ pH 12+: 203117A _____ Other: (Specify) _____

Comments Received an additional sample. It is a ~300mL HNO3 preserved water sample with client ID "FB-210727" and alpha ID "L2140301-13F". Collection date and time are 7/27 15:00. It is logged in as -13.

SM089-02 Rev. Date 12/1/16

JD29089: Chain of Custody

Page 3 of 4

4.1
4

Responded to by: Michelle

Response Date: 7/29

-13, please add and run for PB per Nadine Yakes

4.1

4

JD29089: Chain of Custody
Page 4 of 4



Dayton, NJ

Section 5

Metals Analysis

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	46		
Antimony	6.0	2.5	4.7		
Arsenic	3.0	2	2.8		
Barium	200	.4	13		
Beryllium	1.0	.1	.5		
Bismuth	20	3.6	4		
Boron	100	1.9	63		
Cadmium	3.0	.4	1		
Calcium	5000	5.6	99		
Cerium	100				
Chromium	10	.5	2		
Cobalt	50	.5	2.6		
Copper	10	1	5.9		
Iron	100	11	32		
Lead	3.0	1.2	1.8	0.60	<3.0
Lithium	50	2.3	7.3		
Magnesium	5000	65	140		
Manganese	15	.2	1.4		
Molybdenum	20	.4	3.6		
Nickel	10	.3	1.7		
Phosphorus	50	4.1	18		
Potassium	10000	55	200		
Selenium	10	3.5	4.9		
Silicon	200	1.6	100		
Silver	10	1.1	1.9		
Sodium	10000	11	570		
Strontium	10	.1	1		
Sulfur	50	4.4	45		
Thallium	10	2.5	1.8		
Tin	10	1	3.7		
Titanium	10	.4	2.5		
Tungsten	50	2.8	40		
Vanadium	50	.6	1.8		

5.1.1
5

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB	
				raw	final

Zinc	20	.1	6.9		
Zirconium	10	.4	4.1		

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.1.1
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27798
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MS	SpikeLot MPSPK2		% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Bismuth					
Boron	anr				
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	1.3	1940	2000	96.9	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

5.1.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MS	Spikelet MPSPK2	% Rec	QC Limits
-------	--------------------------	--------------------	-------	--------------

Zinc anr

Zirconium

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested

5.1.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27798
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MSD	SpikeLot MPSPK2 % Rec		MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Bismuth					
Boron	anr				
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	1.3	1940	2000	96.9	0.0 20
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

5.1.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27798
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MSD	Spikelet MPSPK2	% Rec	MSD RPD	QC Limit
-------	---------------------------	--------------------	-------	------------	-------------

Zinc anr

Zirconium

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

5.1.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27798
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron	anr			
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			

5.1.3
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zirconium

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.1.3
5

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27798
 Matrix Type: AQUEOUS

Methods: SW846 6010D
 Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original SDL 1:5	%DIF	QC Limits
-------	-------------------------------	------	--------------

Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron	anr		
Cadmium	anr		
Calcium			
Cerium			
Chromium	anr		
Cobalt			
Copper	anr		
Iron	anr		
Lead	1.30	0.00	100.0 (a) 0-10
Lithium			
Magnesium			
Manganese			
Molybdenum	anr		
Nickel	anr		
Phosphorus			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

5.1.4
5

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original SDL 1:5	%DIF	QC Limits
-------	-------------------------------	------	--------------

Zinc anr

Zirconium

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

5.1.4
5

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.7	8.1		
Antimony	2.0	.17	.41		
Arsenic	2.0	.21	.28		
Barium	20	.08	1.9		
Beryllium	0.20	.03	.08		
Bismuth	2.0	.23	.52		
Boron	10	.23	1.5		
Cadmium	0.50	.03	.07		
Calcium	500	.66	44		
Chromium	1.0	.03	.37		
Cobalt	5.0	.04	.28		
Copper	2.5	.08	.84		
Iron	50	.53	19		
Lead	2.0	.11	.41	0.020	<2.0
Lithium	5.0	.48	.92		
Magnesium	500	3.2	14		
Manganese	1.5	.01	.41		
Molybdenum	2.0	.06	.32		
Nickel	4.0	.04	.35		
Phosphorus	20	.12	3.3		
Potassium	1000	7.7	32		
Selenium	2.0	.32	.65		
Silicon	20	.17	11		
Silver	0.50	.1	.17		
Sodium	1000	3.4	78		
Strontium	5.0	.03	.18		
Sulfur	10	.3	9.4		
Thallium	1.0	.18	.58		
Tin	20	.08	3.8		
Titanium	1.0	.05	.34		
Tungsten	5.0	.26	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	RL	IDL	MDL	MB raw	final
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Zirconium 2.0 .03 .23

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.2.1
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27852
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original MS	SpikeLot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	2740	2460	246	-113.7(a) 75-125
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

5.2.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27852
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original MS	Spike lot MPSPK2	% Rec	QC Limits
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Zirconium

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.2.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27852
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	2740	3120	241	157.5 (a) 23.7 (b)	20
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

5.2.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27852
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original MSD	SpikeLot MPSPK2	% Rec	MSD RPD	QC Limit
-------	---------------------------	--------------------	-------	------------	-------------

Zirconium

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes

- (*) Outside of QC limits
- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- (b) High rpd due to possible sample nonhomogeneity.

5.2.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
 Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
 Project: Alpha Analytical, PA

QC Batch ID: MP27852
 Matrix Type: SOLID

Methods: SW846 6010D
 Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	194	200	97.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

5.2.3
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
-------	---------------	--------------------	-------	--------------

Zirconium

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.2.3
5

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

Metal	JD29089-4 Original	SDL 5:25	%DIF	QC Limits
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Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	23400	21500	8.1	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

5.2.4
5

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

	JD29089-4	QC
Metal	Original SDL 5:25 %DIF	Limits

Zirconium

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.2.4
5



ANALYTICAL REPORT

Lab Number:	L2153851
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:	10/18/21

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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: L2153851
Report Date: 10/18/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2153851-01	PB-204-01-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:45	10/04/21
L2153851-02	PB-204-02-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:55	10/04/21
L2153851-03	PB-204-03-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:10	10/04/21
L2153851-04	PB-204-04-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:25	10/04/21
L2153851-05	PB-204-05-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:35	10/04/21
L2153851-06	PB-204-06-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:40	10/04/21
L2153851-07	PB-204-07-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:50	10/04/21
L2153851-08	PB-204-08-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:00	10/04/21
L2153851-09	PB-204-09-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:10	10/04/21
L2153851-10	PB-204-10-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:15	10/04/21
L2153851-11	PB-204-11-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:55	10/04/21
L2153851-12	PB-204-12-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:15	10/04/21
L2153851-13	PB-204-13-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:30	10/04/21
L2153851-14	FB-211004	WATER	PHILADELPHIA, PA	10/04/21 14:50	10/04/21
L2153851-15	TB-211004	WATER	PHILADELPHIA, PA	10/04/21 00:00	10/04/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

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: L2153851
Report Date: 10/18/21

Case Narrative (continued)

Report Submission

October 18, 2021: This final report includes the results of all requested analyses.

October 11, 2021: 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

L2153851-01D, -03D, and -12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2153851-02, -04, and -05: 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.

The following surrogate recoveries are outside the acceptance criteria; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2153851-01D: toluene-d8 (183%) and 4-bromofluorobenzene (177%)

L2153851-02: 4-bromofluorobenzene (140%)

L2153851-03D: toluene-d8 (135%)

L2153851-04: 4-bromofluorobenzene (131%)

L2153851-05: 1,2-dichloroethane-d4 (164%), 4-bromofluorobenzene (160%), and dibromofluoromethane (67%)

L2153851-07 Low Level: 4-bromofluorobenzene (139%)

L2153851-08: 1,2-dichloroethane-d4 (143%)

L2153851-09: toluene-d8 (158%)

L2153851-10: 1,2-dichloroethane-d4 (1220%), toluene-d8 (186%), and 4-bromofluorobenzene (148%)

L2153851-12D: toluene-d8 (136%)

L2153851-13: 1,2-dichloroethane-d4 (143%), toluene-d8 (200%), and 4-bromofluorobenzene (133%)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Case Narrative (continued)

L2153851-07: 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 analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

L2153851-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (42%) due to interference with the Internal Standard.

L2153851-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.

L2153851-11: The internal standard (IS) response for fluorobenzene (205%) and the surrogate recoveries for 1,2-dichloroethane-d4 (63%), 4-bromofluorobenzene (226%), and dibromofluoromethane (34%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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 analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

Semivolatile Organics by SIM

L2153851-01D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2153851-06D: 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.

Total Metals

L2153851-05: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

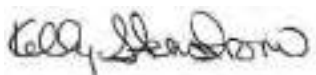
Case Narrative (continued)

The WG1554856-3 MS recovery for lead (27%), performed on L2153851-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1554856-4 Laboratory Duplicate RPD for lead (53%), performed on L2153851-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

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: 10/18/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01 D
 Client ID: PB-204-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 14:26
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.089	J	mg/kg	0.55	0.056	4
Benzene	0.46		mg/kg	0.14	0.046	4
1,2-Dichloroethane	ND		mg/kg	0.28	0.071	4
Toluene	0.39		mg/kg	0.28	0.15	4
1,2-Dibromoethane	ND		mg/kg	0.14	0.081	4
Ethylbenzene	0.52		mg/kg	0.28	0.039	4
p/m-Xylene	0.81		mg/kg	0.55	0.15	4
o-Xylene	0.19	J	mg/kg	0.28	0.080	4
Xylenes, Total	1.0	J	mg/kg	0.28	0.080	4
Isopropylbenzene	38.		mg/kg	0.28	0.030	4
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.55	0.053	4
1,2,4-Trimethylbenzene	0.83		mg/kg	0.55	0.092	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	183	Q	70-130
4-Bromofluorobenzene	177	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02
 Client ID: PB-204-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:55
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 08:39
 Analyst: MV
 Percent Solids: 81%

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	0.033	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	0.033	0.020	1
Ethylbenzene	ND		mg/kg	0.067	0.0094	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.067	0.019	1
Xylenes, Total	ND		mg/kg	0.067	0.019	1
Isopropylbenzene	3.1		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.046	J	mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03 D
 Client ID: PB-204-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:10
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 15:16
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.12		mg/kg	0.12	0.042	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	0.24	J	mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.073	4
Ethylbenzene	0.13	J	mg/kg	0.25	0.035	4
p/m-Xylene	0.20	J	mg/kg	0.50	0.14	4
o-Xylene	0.097	J	mg/kg	0.25	0.073	4
Xylenes, Total	0.30	J	mg/kg	0.25	0.073	4
Isopropylbenzene	7.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.50	0.084	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	135	Q	70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
 Client ID: PB-204-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 09:05
 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	0.12	0.013	1
Benzene	0.12		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.043	J	mg/kg	0.063	0.016	1
Toluene	0.065		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.21		mg/kg	0.063	0.0088	1
p/m-Xylene	0.21		mg/kg	0.12	0.035	1
o-Xylene	0.028	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.24	J	mg/kg	0.063	0.018	1
Isopropylbenzene	2.8		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.76		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	131	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
 Client ID: PB-204-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:35
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 09:31
 Analyst: MV
 Percent Solids: 81%

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	0.75		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.59		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.75		mg/kg	0.069	0.0098	1
p/m-Xylene	4.0		mg/kg	0.14	0.039	1
o-Xylene	0.41		mg/kg	0.069	0.020	1
Xylenes, Total	4.4		mg/kg	0.069	0.020	1
Isopropylbenzene	5.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	7.7		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	2.4		mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	164	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	160	Q	70-130
Dibromofluoromethane	67	Q	70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D2
 Client ID: PB-204-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 10:36
 Analyst: MV
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.10	J	mg/kg	0.26	0.027	2
Benzene	2.3		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.072	2
1,2-Dibromoethane	0.043	J	mg/kg	0.066	0.039	2
Ethylbenzene	9.6		mg/kg	0.13	0.019	2
p/m-Xylene	4.1		mg/kg	0.26	0.074	2
o-Xylene	0.080	J	mg/kg	0.13	0.038	2
Xylenes, Total	4.2	J	mg/kg	0.13	0.038	2
Isopropylbenzene	6.7		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.67		mg/kg	0.26	0.026	2
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D
 Client ID: PB-204-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 16:32
 Analyst: NLK
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	47.		mg/kg	0.53	0.088	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
 Client ID: PB-204-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 16:57
 Analyst: NLK
 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	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.19		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.022	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
 Client ID: PB-204-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 17:48
 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	0.0027		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	0.0022		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.0084		mg/kg	0.00094	0.00013	1
p/m-Xylene	0.0038		mg/kg	0.0019	0.00052	1
o-Xylene	0.0026		mg/kg	0.00094	0.00027	1
Xylenes, Total	0.0064		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.56	E	mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.0085		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	42	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
 Client ID: PB-204-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:00
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 11:01
 Analyst: MV
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0		mg/kg	0.11	0.011	1
Benzene	0.16		mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	0.063		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	0.42		mg/kg	0.057	0.0080	1
p/m-Xylene	0.42		mg/kg	0.11	0.032	1
o-Xylene	0.018	J	mg/kg	0.057	0.017	1
Xylenes, Total	0.44	J	mg/kg	0.057	0.017	1
Isopropylbenzene	2.6		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	7.6		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	5.3		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	143	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
 Client ID: PB-204-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:10
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 12:42
 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	0.018	J	mg/kg	0.12	0.012	1
Benzene	0.058		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.046	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.11		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	0.020	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.020	J	mg/kg	0.060	0.017	1
Isopropylbenzene	2.4		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	158	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
 Client ID: PB-204-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:15
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 18:13
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.069		mg/kg	0.0019	0.00019	1
Benzene	0.24		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.097		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.085		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.52		mg/kg	0.0019	0.00052	1
o-Xylene	0.068		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.59		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.043		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.061		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	1220	Q	70-130
Toluene-d8	186	Q	70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	66	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
 Client ID: PB-204-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:55
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 18:39
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.42	E	mg/kg	0.0020	0.00020	1
Benzene	0.023		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0057		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.012		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.019		mg/kg	0.0020	0.00056	1
o-Xylene	0.0085		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.028		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.53	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0087		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	63	Q	70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	226	Q	70-130
Dibromofluoromethane	34	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11 D
 Client ID: PB-204-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:55
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 18:37
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.6		mg/kg	0.52	0.052	4
Benzene	0.23		mg/kg	0.13	0.043	4
1,2-Dichloroethane	ND		mg/kg	0.26	0.067	4
Toluene	0.20	J	mg/kg	0.26	0.14	4
1,2-Dibromoethane	0.080	J	mg/kg	0.13	0.076	4
Ethylbenzene	0.16	J	mg/kg	0.26	0.037	4
p/m-Xylene	0.27	J	mg/kg	0.52	0.14	4
o-Xylene	0.11	J	mg/kg	0.26	0.076	4
Xylenes, Total	0.38	J	mg/kg	0.26	0.076	4
Isopropylbenzene	5.1		mg/kg	0.26	0.028	4
1,3,5-Trimethylbenzene	0.065	J	mg/kg	0.52	0.050	4
1,2,4-Trimethylbenzene	0.31	J	mg/kg	0.52	0.087	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12 D
 Client ID: PB-204-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:15
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 19:02
 Analyst: NLK
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40	J	mg/kg	0.95	0.095	4
Benzene	1.8		mg/kg	0.24	0.079	4
1,2-Dichloroethane	ND		mg/kg	0.47	0.12	4
Toluene	4.0		mg/kg	0.47	0.26	4
1,2-Dibromoethane	ND		mg/kg	0.24	0.14	4
Ethylbenzene	1.7		mg/kg	0.47	0.067	4
p/m-Xylene	4.6		mg/kg	0.95	0.26	4
o-Xylene	0.57		mg/kg	0.47	0.14	4
Xylenes, Total	5.2		mg/kg	0.47	0.14	4
Isopropylbenzene	19.		mg/kg	0.47	0.052	4
1,3,5-Trimethylbenzene	0.76	J	mg/kg	0.95	0.091	4
1,2,4-Trimethylbenzene	2.0		mg/kg	0.95	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	136	Q	70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
 Client ID: PB-204-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:30
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 13:07
 Analyst: KJD
 Percent Solids: 80%

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	0.019	J	mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.061	J	mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.067	0.0095	1
p/m-Xylene	0.44		mg/kg	0.13	0.038	1
o-Xylene	0.078		mg/kg	0.067	0.020	1
Xylenes, Total	0.52		mg/kg	0.067	0.020	1
Isopropylbenzene	2.7		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.4		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.37		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	143	Q	70-130
Toluene-d8	200	Q	70-130
4-Bromofluorobenzene	133	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
 Client ID: FB-211004
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/06/21 18:48
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/06/21 16:28

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: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
 Client ID: FB-211004
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 11:21
 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	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-15
 Client ID: TB-211004
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 00:00
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/06/21 18:54
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/06/21 16:28

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: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-15
 Client ID: TB-211004
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 00:00
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 11:44
 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	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
 Analytical Date: 10/06/21 17:21
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 14-15 Batch: WG1555315-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:12
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14-15 Batch: WG1556690-5					
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	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:17
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,08-09,13 Batch: WG1556767-10					
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	98		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 10/09/21 11:04
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06-07,11-12 Batch: WG1556767-5					
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	103		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 10/11/21 07:21
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04-05 Batch: WG1556894-10					
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	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/10/21 14:48
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10-11 Batch: WG1556923-5					
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	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 14-15 Batch: WG1555315-2									
1,2-Dibromoethane	104		-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14-15 Batch: WG1556690-3 WG1556690-4								
Methyl tert butyl ether	87		93		63-130	7		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	97		99		70-130	2		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		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	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	98		103		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06-07,11-12 Batch: WG1556767-3 WG1556767-4								
Methyl tert butyl ether	82		88		66-130	7		30
Benzene	99		98		70-130	1		30
1,2-Dichloroethane	86		90		70-130	5		30
Toluene	97		93		70-130	4		30
1,2-Dibromoethane	91		94		70-130	3		30
Ethylbenzene	94		95		70-130	1		30
p/m-Xylene	107		109		70-130	2		30
o-Xylene	97		99		70-130	2		30
Isopropylbenzene	88		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	86		86		70-130	0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	100		97		70-130
4-Bromofluorobenzene	86		88		70-130
Dibromofluoromethane	96		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,08-09,13 Batch: WG1556767-8 WG1556767-9								
Methyl tert butyl ether	80		80		66-130	0		30
Benzene	96		95		70-130	1		30
1,2-Dichloroethane	84		84		70-130	0		30
Toluene	89		93		70-130	4		30
1,2-Dibromoethane	80		90		70-130	12		30
Ethylbenzene	92		92		70-130	0		30
p/m-Xylene	102		106		70-130	4		30
o-Xylene	91		93		70-130	2		30
Isopropylbenzene	90		87		70-130	3		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		87		70-130
Toluene-d8	97		101		70-130
4-Bromofluorobenzene	91		88		70-130
Dibromofluoromethane	102		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		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	103		104		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: L2153851
Report Date: 10/18/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1556923-3 WG1556923-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	96		97		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01 D
 Client ID: PB-204-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/09/21 22:15
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.52		mg/kg	0.081	0.014	10
Fluorene	0.58		mg/kg	0.081	0.0097	10
Phenanthrene	0.88		mg/kg	0.081	0.0069	10
Anthracene	0.067	J	mg/kg	0.081	0.0065	10
Pyrene	0.18		mg/kg	0.081	0.0056	10
Benzo(a)anthracene	0.098		mg/kg	0.081	0.0077	10
Chrysene	0.11		mg/kg	0.081	0.0060	10
Benzo(b)fluoranthene	0.14		mg/kg	0.081	0.0077	10
Benzo(a)pyrene	0.097		mg/kg	0.081	0.0097	10
Indeno(1,2,3-cd)pyrene	0.096		mg/kg	0.081	0.0097	10
Benzo(ghi)perylene	0.10		mg/kg	0.081	0.0069	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	123	Q	23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02
 Client ID: PB-204-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:55
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 01:28
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0082	0.0015	1
Fluorene	0.018		mg/kg	0.0082	0.00099	1
Phenanthrene	0.021		mg/kg	0.0082	0.00070	1
Anthracene	0.0051	J	mg/kg	0.0082	0.00066	1
Pyrene	0.012		mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0053	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0056	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0040	J	mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	0.0027	J	mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	0.0025	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03
 Client ID: PB-204-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:10
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 01:45
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.18		mg/kg	0.0081	0.0014	1
Fluorene	0.092		mg/kg	0.0081	0.00097	1
Phenanthrene	0.13		mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.056		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.030		mg/kg	0.0081	0.00077	1
Chrysene	0.026		mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.036		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.029		mg/kg	0.0081	0.00097	1
Indeno(1,2,3-cd)pyrene	0.022		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.024		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
 Client ID: PB-204-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 02:01
 Analyst: DV
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.067		mg/kg	0.0078	0.0014	1
Fluorene	0.019		mg/kg	0.0078	0.00094	1
Phenanthrene	0.021		mg/kg	0.0078	0.00067	1
Anthracene	0.0048	J	mg/kg	0.0078	0.00063	1
Pyrene	0.0093		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	0.0028	J	mg/kg	0.0078	0.00075	1
Chrysene	0.0029	J	mg/kg	0.0078	0.00059	1
Benzo(b)fluoranthene	0.0024	J	mg/kg	0.0078	0.00075	1
Benzo(a)pyrene	0.0014	J	mg/kg	0.0078	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0015	J	mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	0.0023	J	mg/kg	0.0078	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	53		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
 Client ID: PB-204-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:35
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 02:17
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.068		mg/kg	0.0081	0.0015	1
Fluorene	0.0079	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.013		mg/kg	0.0081	0.00069	1
Anthracene	0.0019	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0031	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0014	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00098	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00098	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.00069	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D
 Client ID: PB-204-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/09/21 22:32
 Analyst: DV
 Percent Solids: 77%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	31.		mg/kg	0.42	0.076	50
Fluorene	0.34	J	mg/kg	0.42	0.051	50
Phenanthrene	0.64		mg/kg	0.42	0.036	50
Anthracene	0.083	J	mg/kg	0.42	0.034	50
Pyrene	0.19	J	mg/kg	0.42	0.030	50
Benzo(a)anthracene	0.074	J	mg/kg	0.42	0.040	50
Chrysene	0.055	J	mg/kg	0.42	0.032	50
Benzo(b)fluoranthene	0.083	J	mg/kg	0.42	0.040	50
Benzo(a)pyrene	0.062	J	mg/kg	0.42	0.051	50
Indeno(1,2,3-cd)pyrene	0.085	J	mg/kg	0.42	0.051	50
Benzo(ghi)perylene	0.089	J	mg/kg	0.42	0.036	50

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: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
 Client ID: PB-204-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 02:50
 Analyst: DV
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.043		mg/kg	0.0079	0.0014	1
Fluorene	0.0078	J	mg/kg	0.0079	0.00094	1
Phenanthrene	0.011		mg/kg	0.0079	0.00067	1
Anthracene	0.0024	J	mg/kg	0.0079	0.00063	1
Pyrene	0.0070	J	mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0043	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0057	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0046	J	mg/kg	0.0079	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0044	J	mg/kg	0.0079	0.00094	1
Benzo(ghi)perylene	0.0040	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
 Client ID: PB-204-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:00
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 03:06
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0081	0.0015	1
Fluorene	0.018		mg/kg	0.0081	0.00098	1
Phenanthrene	0.024		mg/kg	0.0081	0.00069	1
Anthracene	0.0034	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0071	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0033	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0030	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0024	J	mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0018	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0018	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
 Client ID: PB-204-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:10
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 03:22
 Analyst: DV
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.026		mg/kg	0.0079	0.0014	1
Fluorene	0.019		mg/kg	0.0079	0.00095	1
Phenanthrene	0.029		mg/kg	0.0079	0.00067	1
Anthracene	0.0047	J	mg/kg	0.0079	0.00063	1
Pyrene	0.010		mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0026	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0021	J	mg/kg	0.0079	0.00095	1
Indeno(1,2,3-cd)pyrene	0.0012	J	mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.0012	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
 Client ID: PB-204-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:15
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 03:39
 Analyst: DV
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0046	J	mg/kg	0.0081	0.0015	1
Fluorene	0.0022	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.0056	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0015	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0059	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0063	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0049	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.011		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.010		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0099		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0083		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
 Client ID: PB-204-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:55
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 03:55
 Analyst: DV
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.092		mg/kg	0.0082	0.0015	1
Fluorene	0.10		mg/kg	0.0082	0.00098	1
Phenanthrene	0.30		mg/kg	0.0082	0.00070	1
Anthracene	0.083		mg/kg	0.0082	0.00066	1
Pyrene	0.26		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.15		mg/kg	0.0082	0.00078	1
Chrysene	0.12		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.17		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.13		mg/kg	0.0082	0.00098	1
Indeno(1,2,3-cd)pyrene	0.092		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.079		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12
 Client ID: PB-204-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:15
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 04:11
 Analyst: DV
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.62		mg/kg	0.0085	0.0015	1
Fluorene	0.093		mg/kg	0.0085	0.0010	1
Phenanthrene	0.087		mg/kg	0.0085	0.00072	1
Anthracene	0.016		mg/kg	0.0085	0.00068	1
Pyrene	0.039		mg/kg	0.0085	0.00060	1
Benzo(a)anthracene	0.010		mg/kg	0.0085	0.00081	1
Chrysene	0.013		mg/kg	0.0085	0.00064	1
Benzo(b)fluoranthene	0.0096		mg/kg	0.0085	0.00081	1
Benzo(a)pyrene	0.0064	J	mg/kg	0.0085	0.0010	1
Indeno(1,2,3-cd)pyrene	0.0053	J	mg/kg	0.0085	0.0010	1
Benzo(ghi)perylene	0.012		mg/kg	0.0085	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	37		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
 Client ID: PB-204-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:30
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/07/21 04:28
 Analyst: DV
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0082	0.0015	1
Fluorene	0.036		mg/kg	0.0082	0.00099	1
Phenanthrene	0.057		mg/kg	0.0082	0.00070	1
Anthracene	0.0039	J	mg/kg	0.0082	0.00066	1
Pyrene	0.0043	J	mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0012	J	mg/kg	0.0082	0.00078	1
Chrysene	0.00074	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
 Client ID: FB-211004
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
 Date Received: 10/04/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/11/21 16:33
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.07	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
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	79		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 00:56
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-13 Batch: WG1554916-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		25-120
Phenol-d6	65		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	55		30-120
2,4,6-Tribromophenol	78		10-136
4-Terphenyl-d14	56		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:12
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 14 Batch: WG1556643-1					
Naphthalene	0.07	J	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	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	0.01	J	ug/l	0.10	0.01
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-13 Batch: WG1554916-2 WG1554916-3								
Naphthalene	61		58		40-140	5		50
Fluorene	67		61		40-140	9		50
Phenanthrene	62		56		40-140	10		50
Anthracene	66		61		40-140	8		50
Pyrene	68		62		35-142	9		50
Benzo(a)anthracene	69		62		40-140	11		50
Chrysene	62		57		40-140	8		50
Benzo(b)fluoranthene	68		62		40-140	9		50
Benzo(a)pyrene	69		63		40-140	9		50
Indeno(1,2,3-cd)pyrene	78		70		40-140	11		50
Benzo(ghi)perylene	67		61		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	61		58		25-120
Phenol-d6	70		65		10-120
Nitrobenzene-d5	65		61		23-120
2-Fluorobiphenyl	58		54		30-120
2,4,6-Tribromophenol	89		81		10-136
4-Terphenyl-d14	62		57		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 14 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Indeno(1,2,3-cd)pyrene	77		71		40-140	8		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01

Date Collected: 10/04/21 11:45

Client ID: PB-204-01-SS01

Date Received: 10/04/21

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	540		mg/kg	12.2	0.654	5	10/05/21 19:51	10/12/21 12:41	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02

Date Collected: 10/04/21 11:55

Client ID: PB-204-02-SS01

Date Received: 10/04/21

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	8.75		mg/kg	2.39	0.128	1	10/05/21 19:51	10/12/21 11:39	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03

Date Collected: 10/04/21 12:10

Client ID: PB-204-03-SS01

Date Received: 10/04/21

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	10.6		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:43	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04

Date Collected: 10/04/21 12:25

Client ID: PB-204-04-SS01

Date Received: 10/04/21

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	7.64		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 11:47	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05

Date Collected: 10/04/21 12:35

Client ID: PB-204-05-SS01

Date Received: 10/04/21

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	8.38		mg/kg	4.71	0.252	2	10/05/21 19:51	10/13/21 19:04	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06

Date Collected: 10/04/21 12:40

Client ID: PB-204-06-SS01

Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	94.9		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:55	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07

Date Collected: 10/04/21 12:50

Client ID: PB-204-07-SS01

Date Received: 10/04/21

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	33.4		mg/kg	2.36	0.127	1	10/05/21 19:51	10/12/21 11:59	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08

Date Collected: 10/04/21 13:00

Client ID: PB-204-08-SS01

Date Received: 10/04/21

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	7.27		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 12:03	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09

Date Collected: 10/04/21 13:10

Client ID: PB-204-09-SS01

Date Received: 10/04/21

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	7.42		mg/kg	4.79	0.257	2	10/05/21 19:51	10/13/21 19:09	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10

Date Collected: 10/04/21 13:15

Client ID: PB-204-10-SS01

Date Received: 10/04/21

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	6.70		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 12:20	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11

Date Collected: 10/04/21 13:55

Client ID: PB-204-11-SS01

Date Received: 10/04/21

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	91.2		mg/kg	2.38	0.128	1	10/05/21 19:51	10/12/21 12:24	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12

Date Collected: 10/04/21 14:15

Client ID: PB-204-12-SS01

Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	103		mg/kg	2.61	0.140	1	10/05/21 19:51	10/12/21 12:29	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13

Date Collected: 10/04/21 14:30

Client ID: PB-204-13-SS01

Date Received: 10/04/21

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	5.54		mg/kg	2.48	0.133	1	10/05/21 19:51	10/12/21 12:33	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14

Date Collected: 10/04/21 14:50

Client ID: FB-211004

Date Received: 10/04/21

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	10/07/21 08:22	10/07/21 21:30	EPA 3005A	1,6020B	PS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

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): 14 Batch: WG1554465-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	10/07/21 08:22	10/07/21 18:17	1,6020B	PS

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): 01-13 Batch: WG1554856-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	10/05/21 19:51	10/11/21 23:56	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: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 Batch: WG1554465-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-13 Batch: WG1554856-2 SRM Lot Number: D109-540								
Lead, Total	85		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

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): 14 QC Batch ID: WG1554465-3 WG1554465-4 QC Sample: L2154063-04 Client ID: MS Sample												
Lead, Total	0.7171J	530	536.0	101		541.7	102		75-125	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-3 QC Sample: L2153851-01 Client ID: PB-204-01-SS01												
Lead, Total	540	51.8	554	27	Q	-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2153851

Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-4 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Lead, Total	540	934	mg/kg	53	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01
 Client ID: PB-204-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
 Date Received: 10/04/21
 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	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02

Date Collected: 10/04/21 11:55

Client ID: PB-204-02-SS01

Date Received: 10/04/21

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	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03

Date Collected: 10/04/21 12:10

Client ID: PB-204-03-SS01

Date Received: 10/04/21

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	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04

Date Collected: 10/04/21 12:25

Client ID: PB-204-04-SS01

Date Received: 10/04/21

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	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**SAMPLE RESULTS**

Lab ID: L2153851-05

Date Collected: 10/04/21 12:35

Client ID: PB-204-05-SS01

Date Received: 10/04/21

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	81.1		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**SAMPLE RESULTS**

Lab ID: L2153851-06

Date Collected: 10/04/21 12:40

Client ID: PB-204-06-SS01

Date Received: 10/04/21

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	77.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
 Client ID: PB-204-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
 Date Received: 10/04/21
 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	83.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08

Date Collected: 10/04/21 13:00

Client ID: PB-204-08-SS01

Date Received: 10/04/21

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	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
 Client ID: PB-204-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:10
 Date Received: 10/04/21
 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	83.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**SAMPLE RESULTS**

Lab ID: L2153851-10

Date Collected: 10/04/21 13:15

Client ID: PB-204-10-SS01

Date Received: 10/04/21

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	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
 Client ID: PB-204-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:55
 Date Received: 10/04/21
 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	79.0		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12

Date Collected: 10/04/21 14:15

Client ID: PB-204-12-SS01

Date Received: 10/04/21

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	76.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
 Client ID: PB-204-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:30
 Date Received: 10/04/21
 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	79.7		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2153851

Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1554411-1 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Solids, Total	80.9	81.4	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**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(*)
L2153851-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-01B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-01E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-01F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-02B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-02E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-02F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-03B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-03E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-03F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-04B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-04E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-04F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-05B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-05E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-05F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-06B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-06E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-06F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-07B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-07E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-07F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-08B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-08E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-08F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-09A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-09B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2153851**Project Number:** 200.00135.005.03**Report Date:** 10/18/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-09C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-09E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-09F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-10A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-10B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-10E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-10F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-11A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-11B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-11E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-11F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-12A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-12B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-12E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-12F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-13A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-13B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-13E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-13F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Serial_No:10182115:08
Lab Number: L2153851
Report Date: 10/18/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-14A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14C	Vial HCl preserved	B	NA		3.3	Y	Absent		8011(14)
L2153851-14D	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14E	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14F	Plastic 250ml HNO3 preserved	B	<2	<2	3.3	Y	Absent		PB-6020T-PPB(180)
L2153851-15A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)
L2153851-15D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

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: L2153851
Report Date: 10/18/21

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: L2153851
Report Date: 10/18/21

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: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

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-Terpeneol

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-Terpeneol; 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

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information
Client: PAUSON CONSULTING
Address: 2127 HAMILTON AVE
TRENTON, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@pauson.com
 These samples have been previously analyzed by Alpha

Project Information
Project Name: PHILADELPHIA REFINERY
Project Location: PHILADELPHIA, PA
Project #: ZOO.00135.005.03
Project Manager: WILLIAM SCHMIDT
ALPHA Quote #: 13161

Turn-Around Time
 Standard RUSH (only confirmed if pre-approved)
Date Due: _____ Time: _____

Date Rec'd in Lab: 10/5/21
Report Information - Data Deliverables
 FAX EMAIL
 ADEX Add'l Deliverables

ALPHA Job #: 12153851
Billing Information
 Same as Client info PO #:

Regulatory Requirements/Report Limits
State / Fed Program _____ Criteria _____

Other Project Specific Requirements/Comments/Detection Limits:
REPORT ONLY PROJECT-SPECIFIC ANALYTE LIST
SEE ATTACHED. ALSO SEND TO: EDD@TECRAPHASE.COM
JJERRY@HILCOGLOBAL.COM

ANALYSIS
PAPER SHORTLIST 1-6

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					Sample Specific Comments	TOTAL # BOTTLES
		Date	Time								
53851-01	PB-204-01-5501	10/4	1145	S	TS	X				215,000 PID	6
-02	PB-204-02-5501		1155			X					
-03	PB-204-03-5501		1210			X					
-04	PB-204-04-5501		1225			X					
-05	PB-204-05-5501		1235			X					
-06	PB-204-06-5501		1240			X					
-07	PB-204-07-5501		1250			X					
-08	PB-204-08-5501		1300			X					
-09	PB-204-09-5501		1310			X					
-10	PB-204-10-5501		1315			X					

Container Type: E
Preservative: _____

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>10/4 1620</u>	<u>[Signature]</u>	<u>10/4 1620</u>
<u>[Signature]</u>	<u>10/4 1720</u>	<u>[Signature]</u>	<u>10-4-1721</u>
<u>[Signature]</u>	<u>10-4-2030</u>	<u>[Signature]</u>	<u>10/4/21 2030</u>
<u>[Signature]</u>	<u>10-4-2355</u>	<u>[Signature]</u>	<u>10/9/21 2355</u>

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 Terms and Conditions. See reverse side.



CHAIN OF CUSTODY

PAGE 2 OF C

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

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 confirmed if pre-approved!)
Date Due: _____ Time: _____

Date Rec'd in Lab: 10/5/21
Report Information - Data Deliverables
 FAX EMAIL
 ADEx Add'l Deliverables

ALPHA Job #: L2153851
Billing Information
 Same as Client info PO #: _____

Client Information
Client: RANSOM CONSULTING
Address: 2127 HAMILTON AVE
TRENTON, NJ 08619
Phone: 215-901-4974
Fax: _____
Email: William.Schmidt@ransomconsulting.com
 These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
REPORT ONLY PROJECT-SPECIFIC ANALYTE LIST
SEE ATTACHED. ALSO SEND TO: EDD@TERCAPHASE.COM
JJERSV@HILCOGLOBAL.COM

Regulatory Requirements/Report Limits
State /Fed Program _____ Criteria _____

ANALYSIS	PAPER SHEET LIST 1-6	TOTAL # BOTTLES
	PAPER SHEET LIST 1-6 (VOC)	

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							Sample Specific Comments		
		Date	Time											
53851-11	PB-204-11-5501	10/4	1355	S	TS	X							>15,000 PID	6
-12	PB-204-12-5501		1415	S	TS	X							↓	6
-13	PB-204-13-5501		1430	S	TS	X								6
-14	FB-211004		1450	W	TS	X								6
-15	TB-211004			W			X							

Container Type			
Preservative			
Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	10/4 1620	<i>[Signature]</i> AAL	10/4 1620
<i>[Signature]</i>	10/4 1730	<i>[Signature]</i>	10/4 1730
<i>[Signature]</i>	10-21-2021	<i>[Signature]</i>	10/4/21 2355

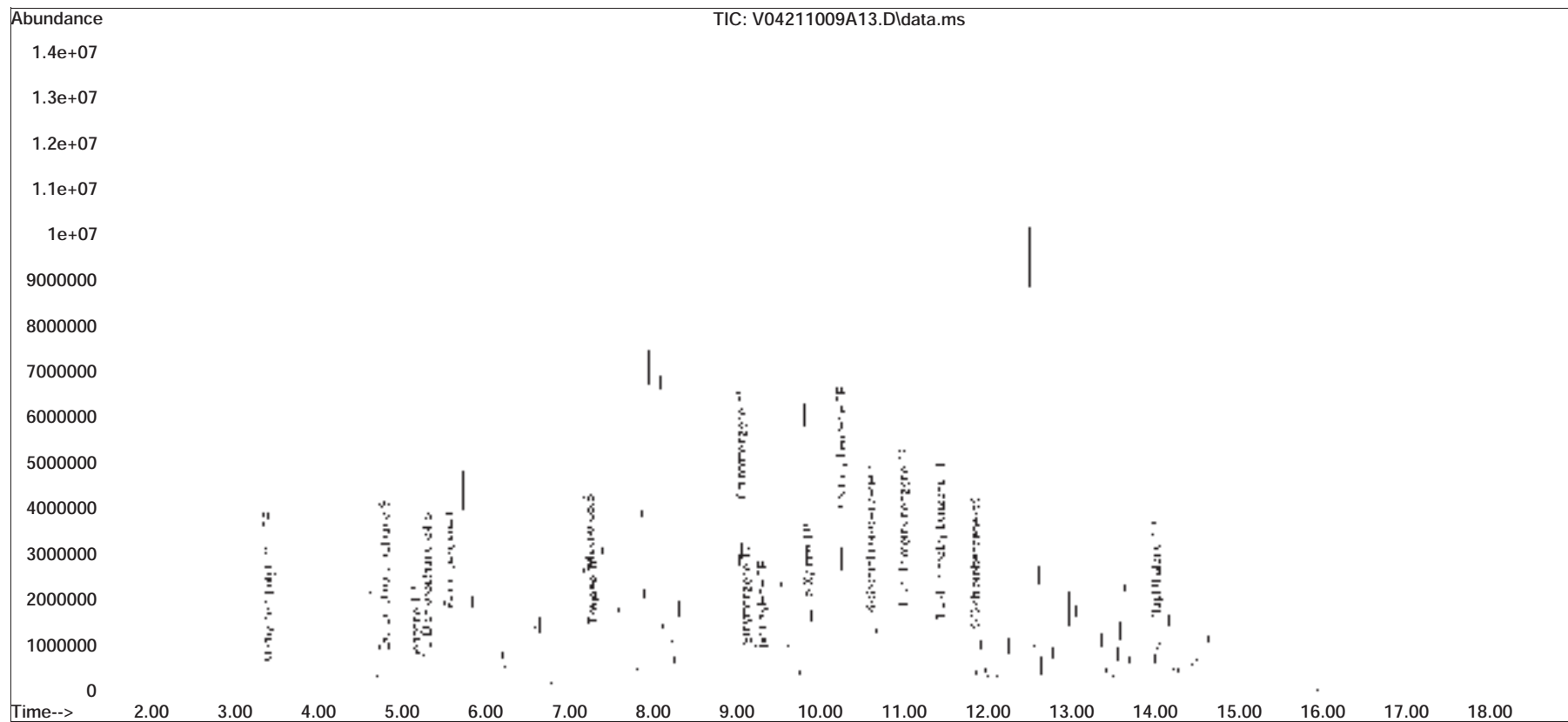
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
 Data File : V04211009A13.D
 Acq On : 9 Oct 2021 2:26 pm
 Operator : VOA104:NLK
 Sample : L2153851-01D,31H,5.39,5,0.025,,A
 Misc : WG1556767,ICAL18128
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 10 11:35:41 2021
 Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Jul 08 11:04:08 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

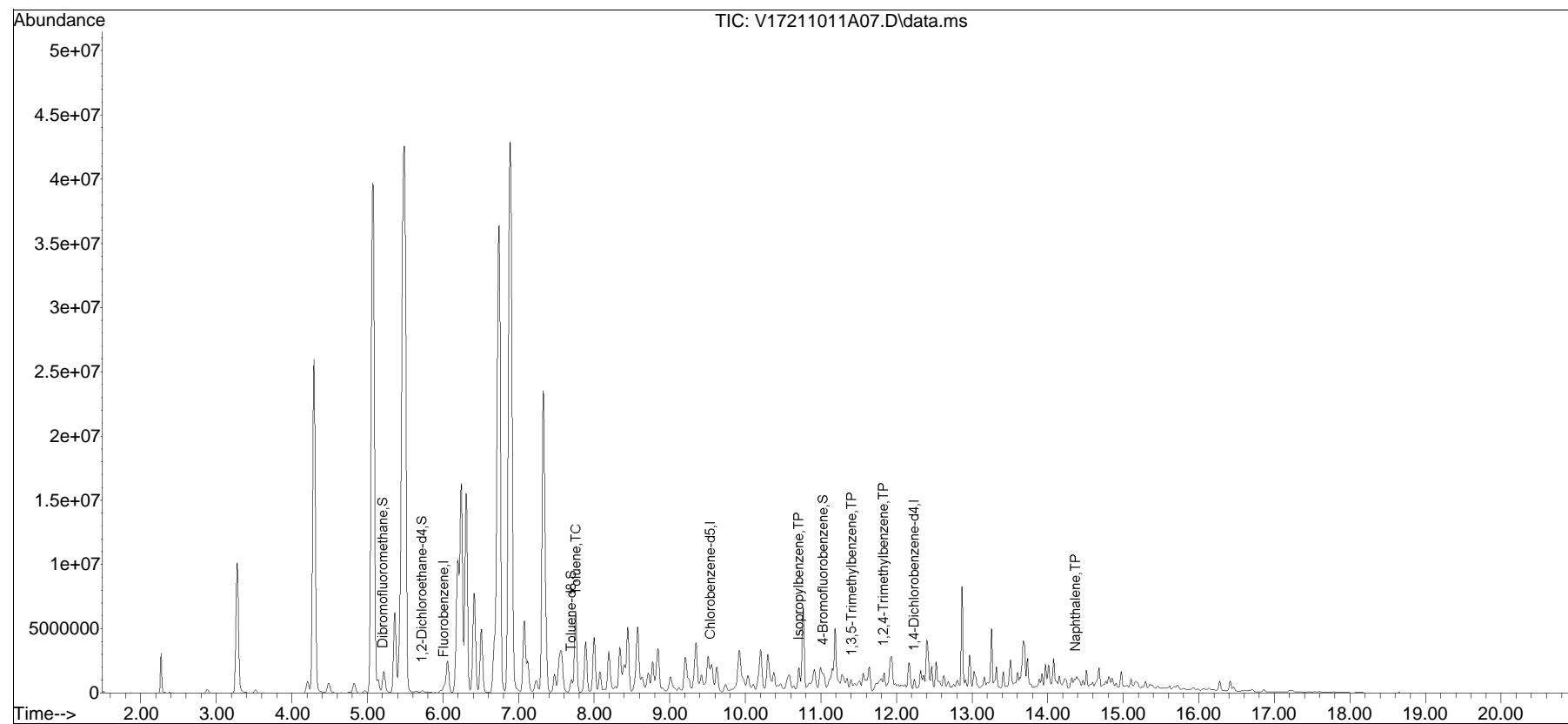


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A07.D
Acq On : 11 Oct 2021 08:39 am
Operator : VOA117:MV
Sample : 12153851-02,31H,5.63,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:54:29 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

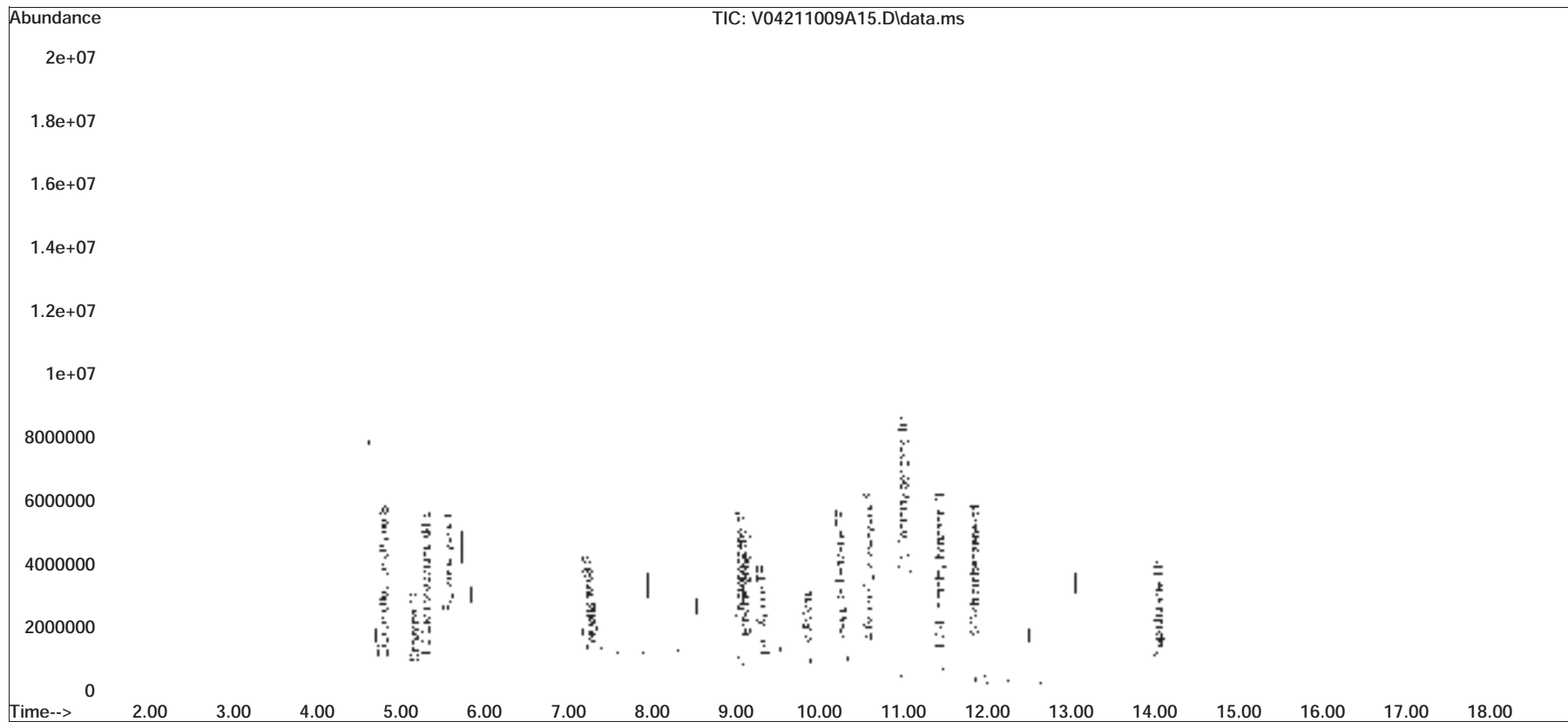


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A15.D
Acq On : 9 Oct 2021 3:16 pm
Operator : VOA104:NLK
Sample : L2153851-03D,31H,6.09,5,0.025,,A
Misc : WG1556767,ICAL18128
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 10 11:36:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

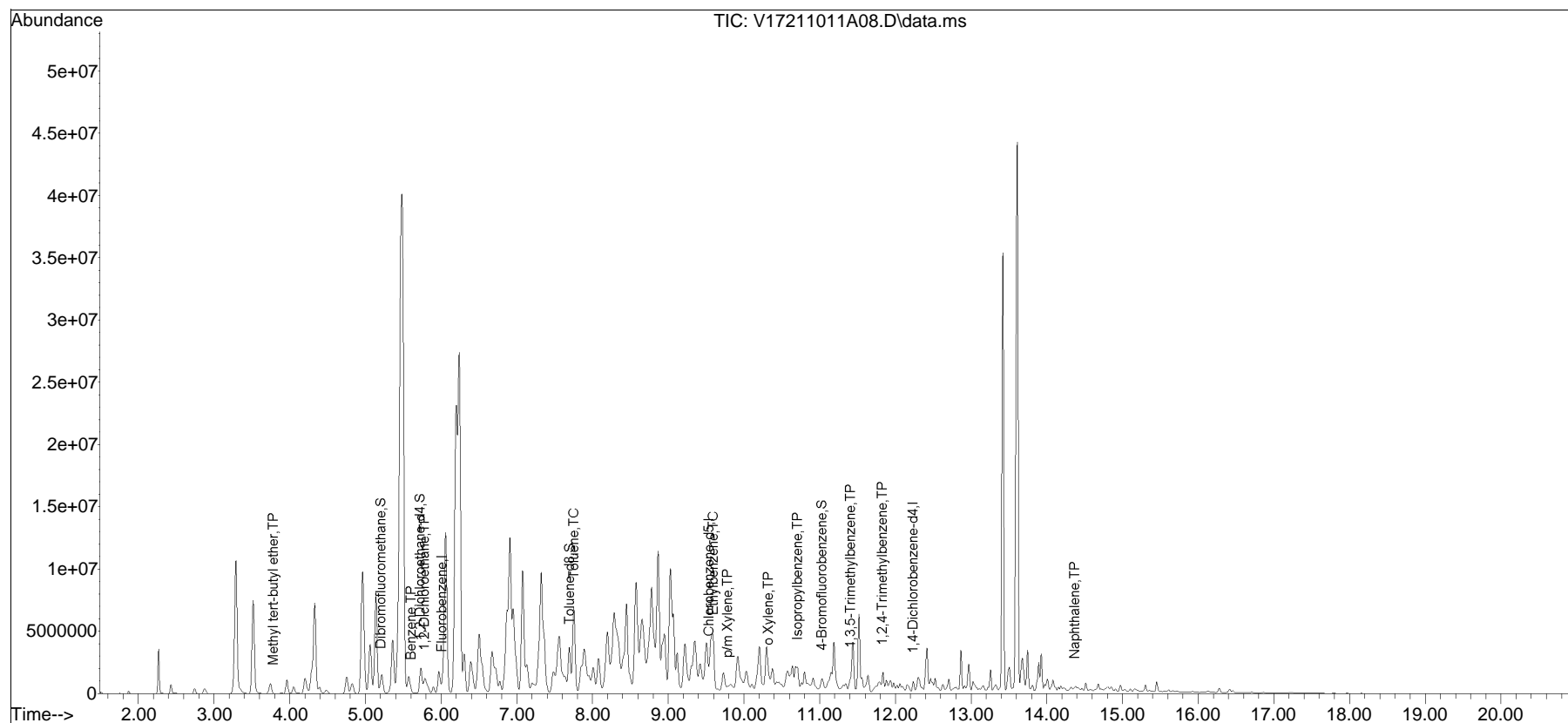


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
 Data File : V17211011A08.D
 Acq On : 11 Oct 2021 09:05 am
 Operator : VOA117:MV
 Sample : 12153851-04,31H,5.86,5,0.100,,a
 Misc : WG1556894,ICAL18358
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 11 12:54:44 2021
 Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Oct 06 07:30:19 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

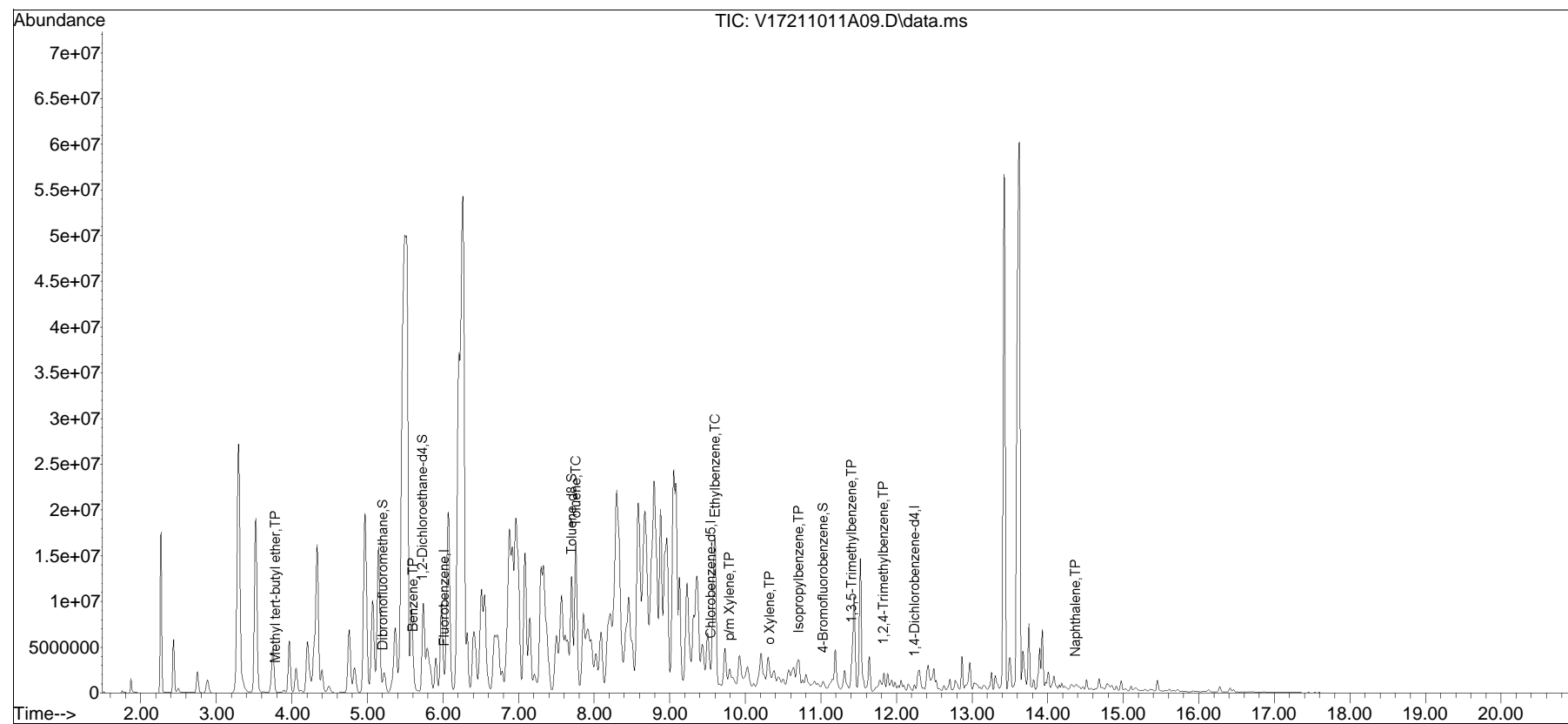


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
 Data File : V17211011A09.D
 Acq On : 11 Oct 2021 09:31 am
 Operator : VOA117:MV
 Sample : 12153851-05,31H,5.36,5,0.100,,a
 Misc : WG1556894,ICAL18358
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 11 12:55:10 2021
 Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Oct 06 07:30:19 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

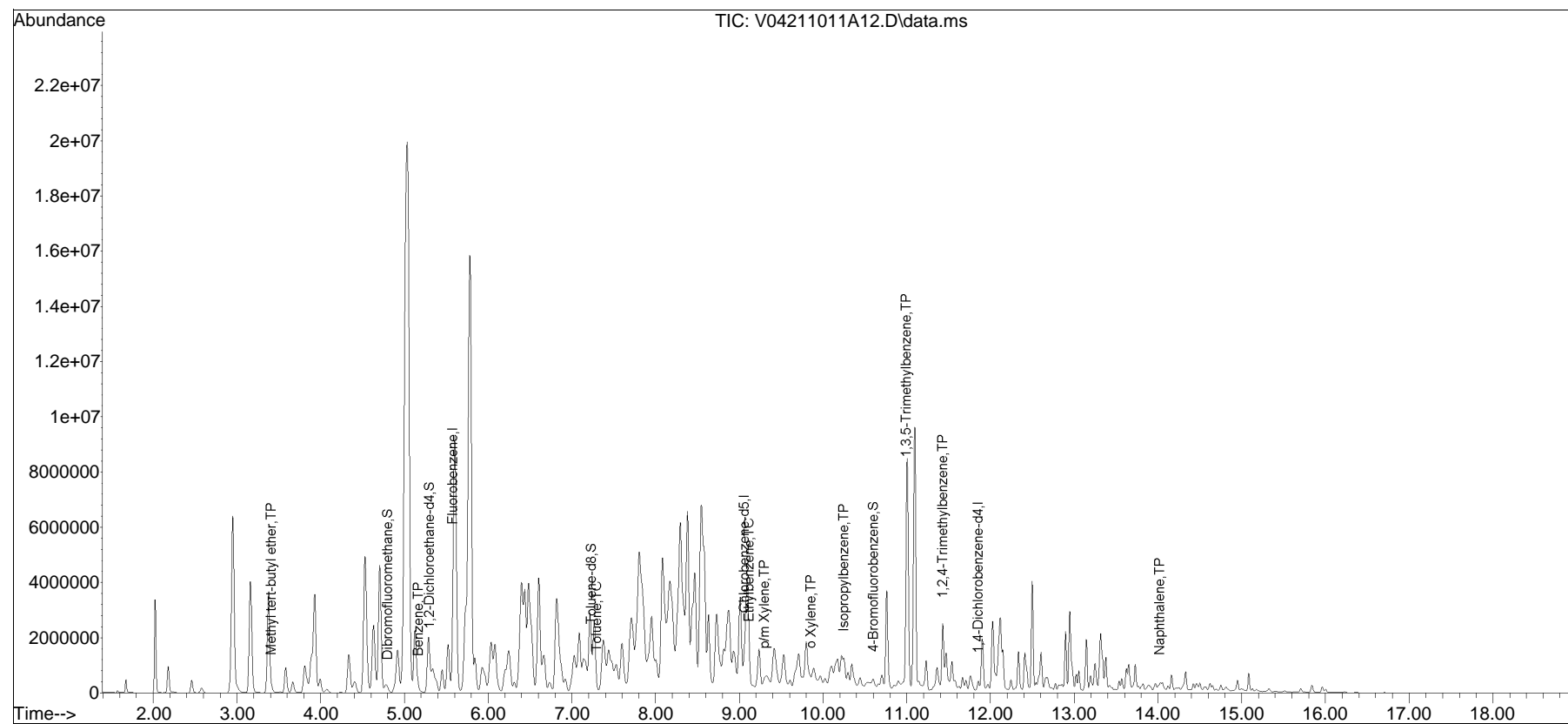


Quantitation Report (QT Reviewed)

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Data File : V04211011A12.D
Acq On : 11 Oct 2021 11:01 am
Operator : VOA104:MV
Sample : L2153851-08,31H,6.76,5,0.100,,A
Misc : WG1556767,ICAL18128
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 11 13:14:25 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•

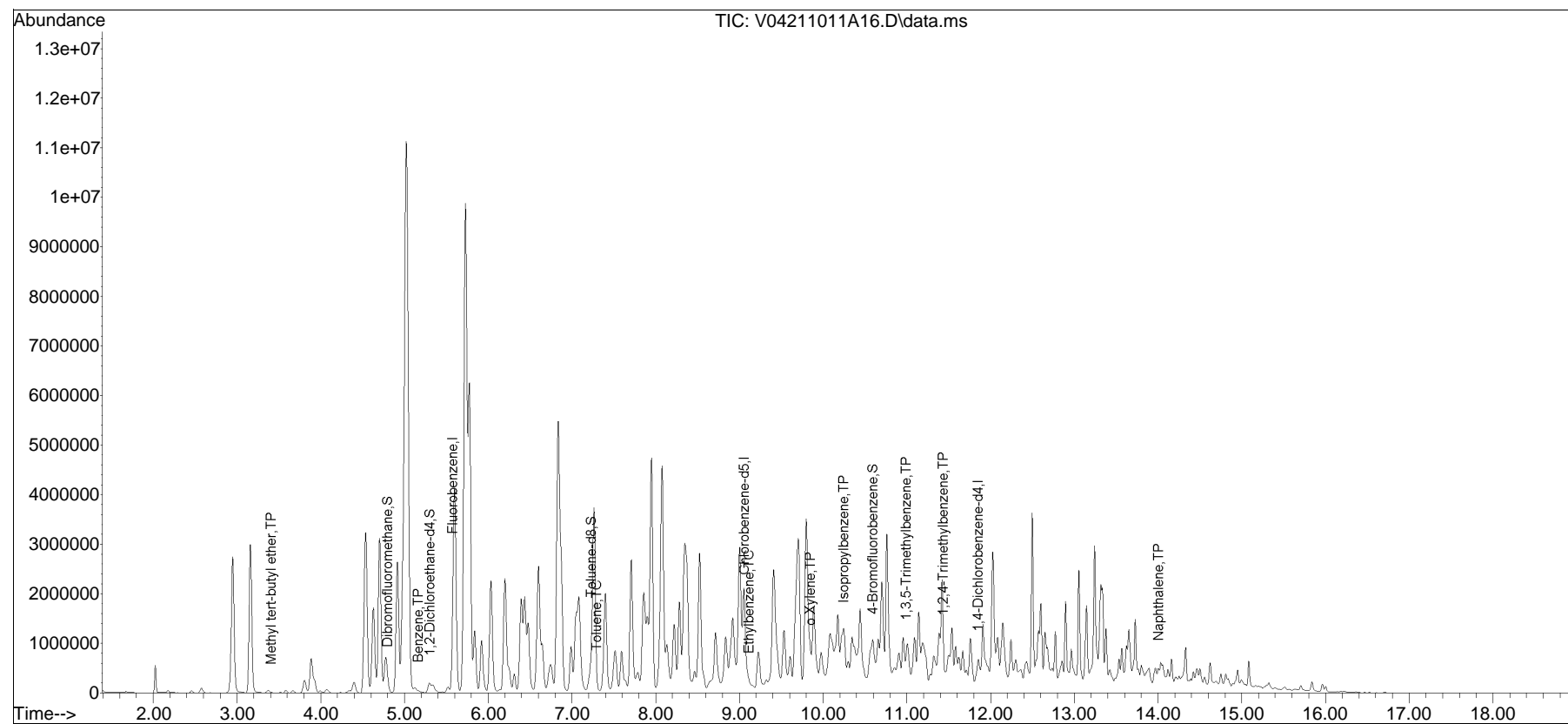


Quantitation Report (QT Reviewed)

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 Data File : V04211011A16.D
 Acq On : 11 Oct 2021 12:42 pm
 Operator : VOA104:MV
 Sample : L2153851-09,31H,6.01,5,0.100,,A
 Misc : WG1556767,ICAL18128
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 11 13:16:36 2021
 Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Jul 08 11:04:08 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•

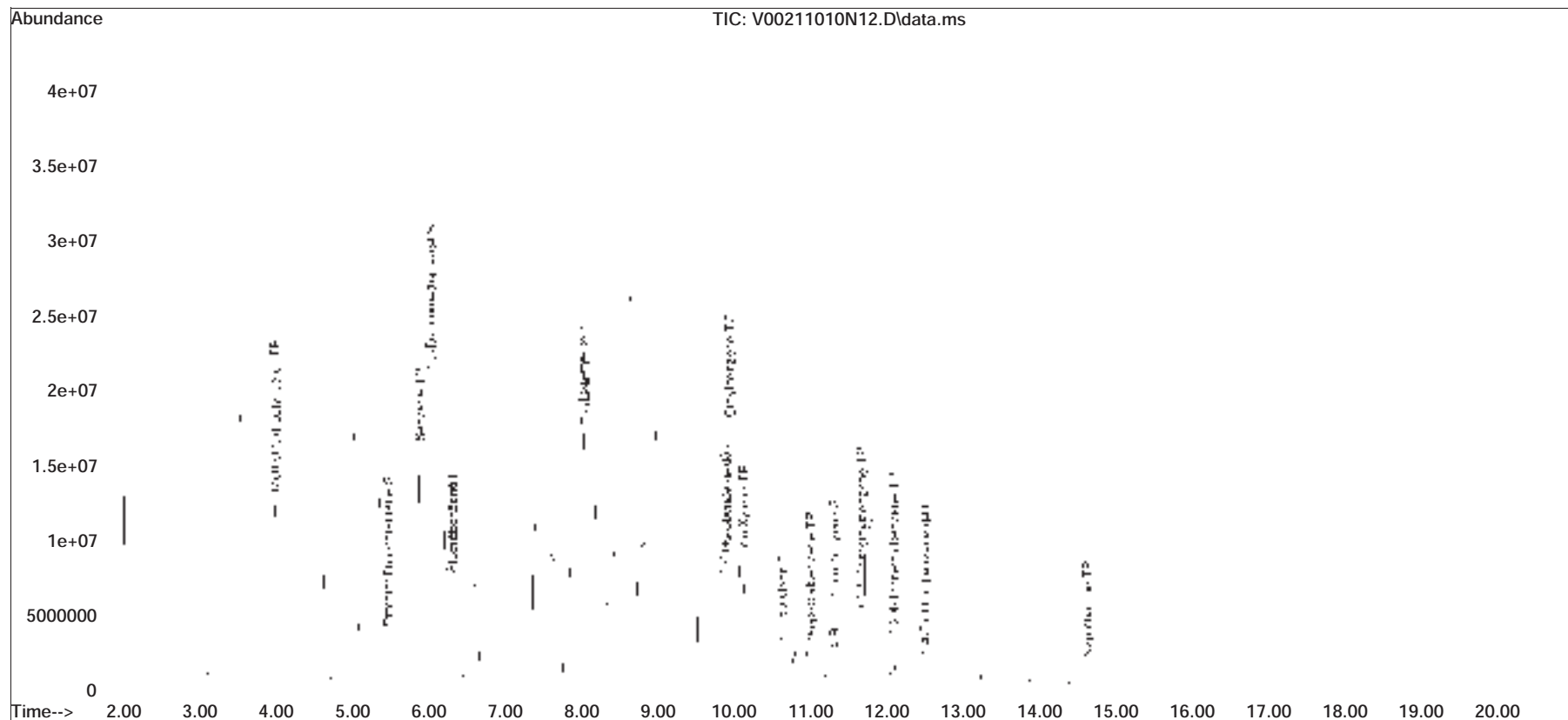


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N12.D
Acq On : 10 Oct 2021 6:13 pm
Operator : VOA100:NLK
Sample : 12153851-10,31,6.60,5,,b
Misc : WG1556923,ICAL18132
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 11 08:05:58 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

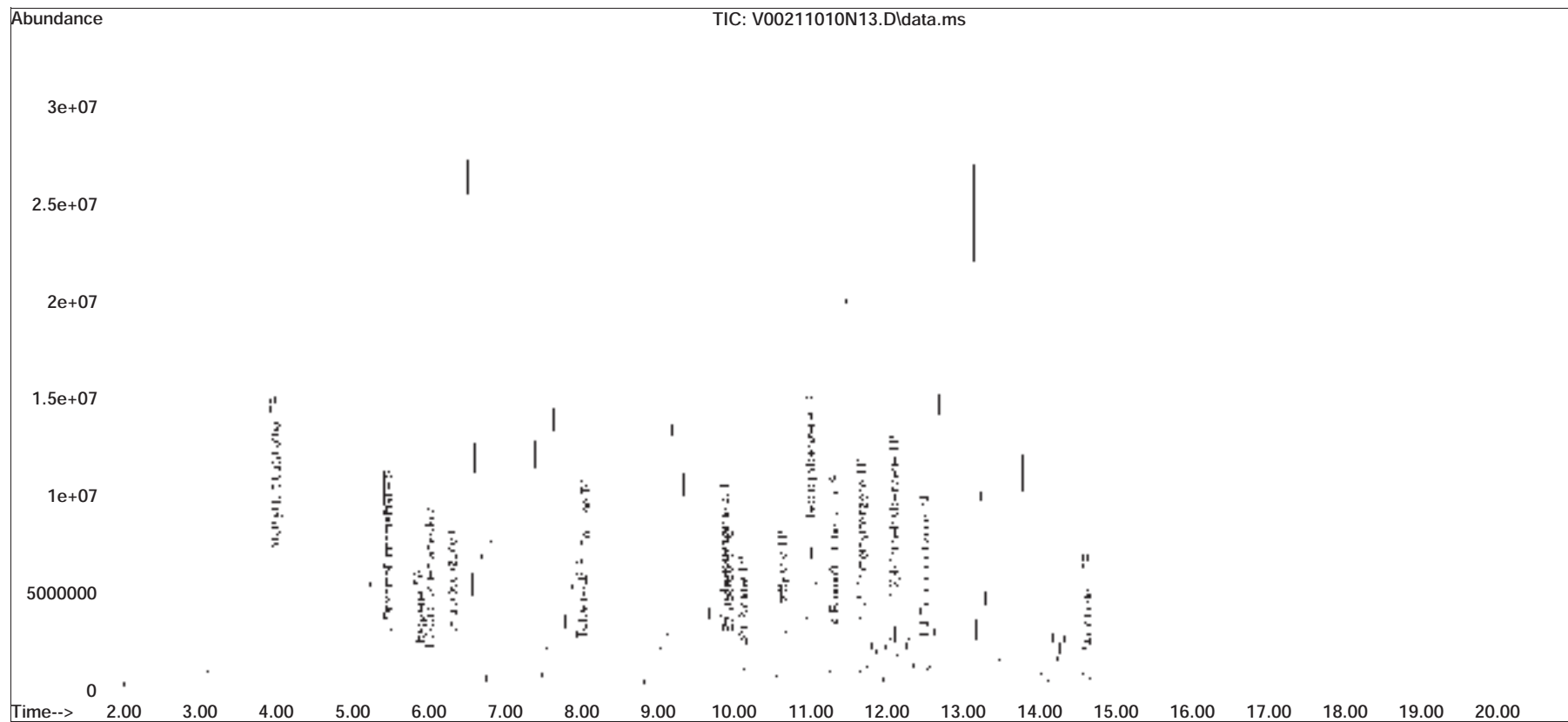


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N13.D
Acq On : 10 Oct 2021 6:39 pm
Operator : VOA100:NLK
Sample : 12153851-11,31,6.31,5,,b
Misc : WG1556923,ICAL18132
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 11 08:06:56 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

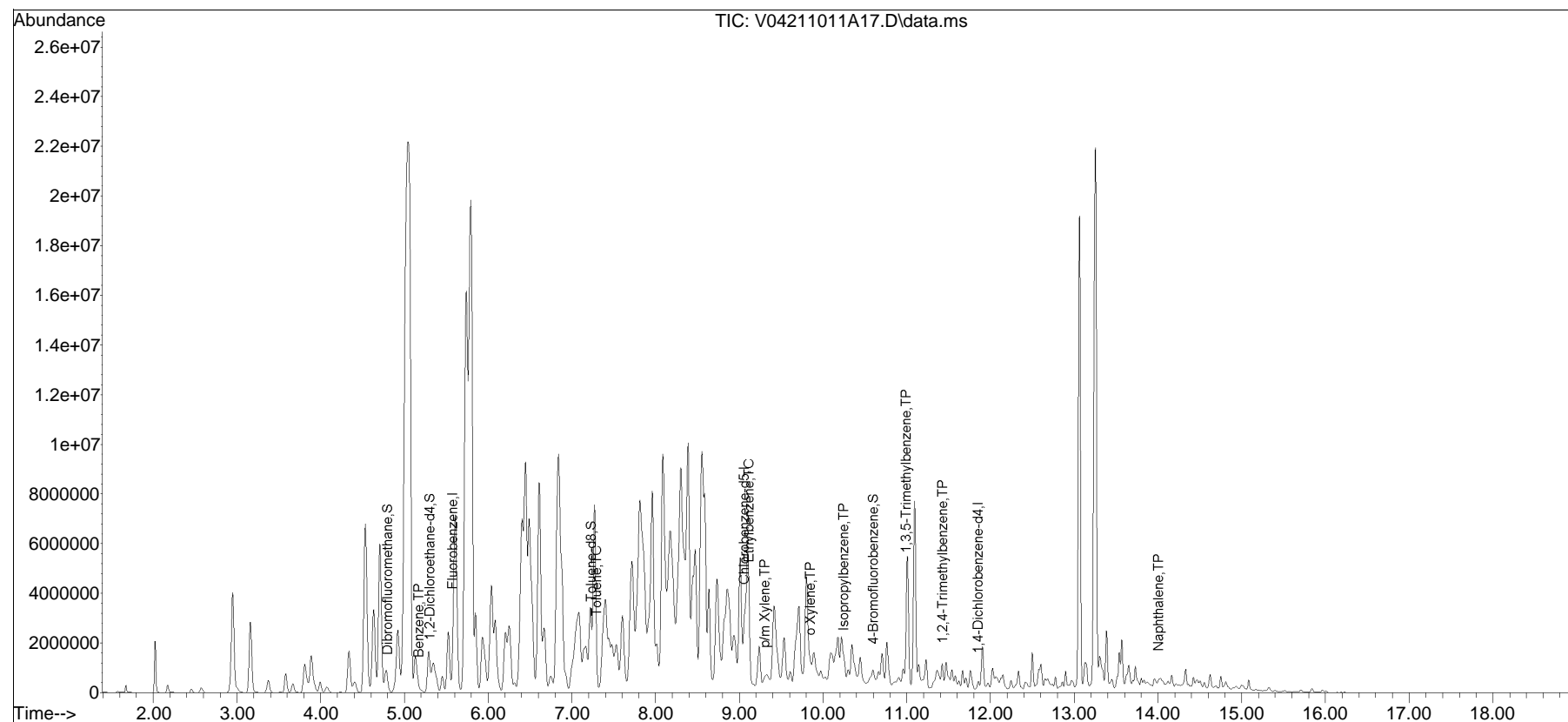


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
 Data File : V04211011A17.D
 Acq On : 11 Oct 2021 1:07 pm
 Operator : VOA104:KJD
 Sample : L2153851-13,31H,5.74,5,0.100,,A
 Misc : WG1556767,ICAL18128
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 11 14:30:38 2021
 Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Jul 08 11:04:08 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•





ANALYTICAL REPORT

Lab Number:	L2154149
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:	10/19/21

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: L2154149

Report Date: 10/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2154149-01	PB-36-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:25	10/05/21
L2154149-02	PB-36-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:40	10/05/21
L2154149-03	PB-36-03-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:00	10/05/21
L2154149-04	PB-36-05-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:25	10/05/21
L2154149-05	PB-36-06-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:35	10/05/21
L2154149-06	PB-36-07-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:50	10/05/21
L2154149-07	PB-36-08-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:15	10/05/21
L2154149-08	PB-36-10-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:25	10/05/21
L2154149-09	PB-36-12-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:50	10/05/21
L2154149-10	PB-36-13-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:05	10/05/21
L2154149-11	PB-36-15-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:15	10/05/21
L2154149-12	PB-36-16-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:30	10/05/21
L2154149-13	PB-36-17-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:50	10/05/21
L2154149-14	PB-36-18-SS01	SOIL	PHILADELPHIA, PA	10/05/21 13:00	10/05/21
L2154149-15	PB-144-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:30	10/05/21
L2154149-16	PB-144-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:45	10/05/21
L2154149-17	DUP-19	SOIL	PHILADELPHIA, PA	10/05/21 00:00	10/05/21
L2154149-18	FB-211005-1	WATER	PHILADELPHIA, PA	10/05/21 12:40	10/05/21
L2154149-19	FB-211005-2	WATER	PHILADELPHIA, PA	10/05/21 15:00	10/05/21
L2154149-20	TB-211005	WATER	PHILADELPHIA, PA	10/05/21 00:00	10/05/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

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: L2154149
Report Date: 10/19/21

Case Narrative (continued)

Report Submission

October 19, 2021: This final report includes the results of all requested analyses.

October 12, 2021: 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

L2154149-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (200%); 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.

L2154149-02: 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.

L2154149-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (349%); 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.

L2154149-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (437%); 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.

L2154149-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.

L2154149-08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2154149-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); 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: L2154149
Report Date: 10/19/21

Case Narrative (continued)

L2154149-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); 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.

L2154149-12 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.

L2154149-12: 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.

L2154149-14: 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.

L2154149-16: 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.

PAHs

L2154149-16D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix, and due to the analytical dilution required by the sample matrix.

Total Metals

The WG1555222-3 MS recovery, performed on L2154149-01, is outside the acceptance criteria for lead (57%). A post digestion spike was performed and yielded an unacceptable recovery for lead (61%). 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 WG1555222-4 Laboratory Duplicate RPD for lead (35%), performed on L2154149-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

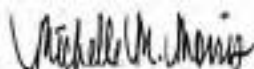
Lab Number: L2154149
Report Date: 10/19/21

Case Narrative (continued)

The WG1555222-6 serial dilution analysis, associated with L2154149-01, had a %D above the acceptance criteria for lead (33%).

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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 10/19/21

ORGANICS



VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01
 Client ID: PB-36-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 09:25
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 16:13
 Analyst: NLK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.77		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.081	0.021	1
Toluene	0.20		mg/kg	0.081	0.044	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.024	1
Ethylbenzene	0.89		mg/kg	0.081	0.011	1
p/m-Xylene	0.58		mg/kg	0.16	0.045	1
o-Xylene	0.18		mg/kg	0.081	0.024	1
Xylenes, Total	0.76		mg/kg	0.081	0.024	1
Isopropylbenzene	13.		mg/kg	0.081	0.0088	1
1,3,5-Trimethylbenzene	0.42		mg/kg	0.16	0.016	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.16	0.027	1
Naphthalene	1.4		mg/kg	0.32	0.053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	200	Q	70-130
Dibromofluoromethane	81		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
 Client ID: PB-36-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 09:40
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 17:05
 Analyst: NLK
 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	0.14	0.014	1
Benzene	0.066		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.052	J	mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	4.4		mg/kg	0.069	0.0097	1
p/m-Xylene	0.15		mg/kg	0.14	0.038	1
o-Xylene	0.11		mg/kg	0.069	0.020	1
Xylenes, Total	0.26		mg/kg	0.069	0.020	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.14	0.023	1
Naphthalene	ND		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03 D2
 Client ID: PB-36-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 07:47
 Analyst: MV
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	670		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03 D
 Client ID: PB-36-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 17:31
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.5	0.25	20
Benzene	35.		mg/kg	0.63	0.21	20
1,2-Dichloroethane	ND		mg/kg	1.3	0.32	20
Toluene	180		mg/kg	1.3	0.68	20
1,2-Dibromoethane	ND		mg/kg	0.63	0.37	20
Ethylbenzene	160		mg/kg	1.3	0.18	20
p/m-Xylene	710		mg/kg	2.5	0.71	20
o-Xylene	290		mg/kg	1.3	0.37	20
Xylenes, Total	1000		mg/kg	1.3	0.37	20
Isopropylbenzene	21.		mg/kg	1.3	0.14	20
1,3,5-Trimethylbenzene	180		mg/kg	2.5	0.24	20
1,2,4-Trimethylbenzene	560	E	mg/kg	2.5	0.42	20
Naphthalene	66.		mg/kg	5.0	0.82	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04
 Client ID: PB-36-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:25
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 15:47
 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	0.0019	0.00019	1
Benzene	ND		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	0.00071	J	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
Naphthalene	0.0033	J	mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	349	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-05
 Client ID: PB-36-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:35
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 14:38
 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	0.14	0.014	1
Benzene	0.10		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.19		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.60		mg/kg	0.072	0.010	1
p/m-Xylene	0.83		mg/kg	0.14	0.040	1
o-Xylene	0.35		mg/kg	0.072	0.021	1
Xylenes, Total	1.2		mg/kg	0.072	0.021	1
Isopropylbenzene	11.		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	1.2		mg/kg	0.14	0.024	1
Naphthalene	0.62		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06 D2
 Client ID: PB-36-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:50
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 14:12
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.4	0.34	25
Benzene	2.7		mg/kg	0.84	0.28	25
1,2-Dichloroethane	ND		mg/kg	1.7	0.43	25
Toluene	2.1		mg/kg	1.7	0.92	25
1,2-Dibromoethane	ND		mg/kg	0.84	0.49	25
Ethylbenzene	260		mg/kg	1.7	0.24	25
p/m-Xylene	1100	E	mg/kg	3.4	0.94	25
o-Xylene	160		mg/kg	1.7	0.49	25
Isopropylbenzene	16.		mg/kg	1.7	0.18	25
1,3,5-Trimethylbenzene	260		mg/kg	3.4	0.32	25
1,2,4-Trimethylbenzene	760	E	mg/kg	3.4	0.56	25
Naphthalene	87.		mg/kg	6.7	1.1	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06 D
 Client ID: PB-36-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:50
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 01:10
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	920		mg/kg	6.7	1.9	50
Xylenes, Total	1100		mg/kg	1.7	0.49	50
1,2,4-Trimethylbenzene	640		mg/kg	6.7	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07
 Client ID: PB-36-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 11:15
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 21:22
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00040	J	mg/kg	0.0020	0.00020	1
Benzene	0.0014		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0027		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.00057	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0028		mg/kg	0.0020	0.00057	1
o-Xylene	0.0030		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0058		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.19		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	0.0027	J	mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	135	Q	70-130
4-Bromofluorobenzene	437	Q	70-130
Dibromofluoromethane	67	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08 D
 Client ID: PB-36-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 11:25
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 22:33
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.61	0.061	5
Benzene	0.52		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	0.22	J	mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.089	5
Ethylbenzene	2.9		mg/kg	0.30	0.043	5
p/m-Xylene	0.87		mg/kg	0.61	0.17	5
o-Xylene	0.38		mg/kg	0.30	0.088	5
Xylenes, Total	1.2		mg/kg	0.30	0.088	5
Isopropylbenzene	1.1		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	0.091	J	mg/kg	0.61	0.058	5
1,2,4-Trimethylbenzene	0.14	J	mg/kg	0.61	0.10	5
Naphthalene	1.1	J	mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09
 Client ID: PB-36-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 11:50
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 20:53
 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	0.0025		mg/kg	0.0018	0.00018	1
Benzene	0.015		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.0013		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0016		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.0050		mg/kg	0.0018	0.00050	1
o-Xylene	0.0022		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.0072		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.0036		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.019		mg/kg	0.0018	0.00030	1
Naphthalene	0.0039		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10
 Client ID: PB-36-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:05
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 21:18
 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	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	0.00065	J	mg/kg	0.00094	0.00027	1
Xylenes, Total	0.00065	J	mg/kg	0.00094	0.00027	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
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11
 Client ID: PB-36-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:15
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 21:47
 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	0.0019	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	0.00074	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.00074	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00036	J	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
Naphthalene	0.00085	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	151	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12
 Client ID: PB-36-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:30
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 23:23
 Analyst: NLK
 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	0.13	0.013	1
Benzene	0.030	J	mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	0.022	J	mg/kg	0.065	0.0092	1
p/m-Xylene	0.060	J	mg/kg	0.13	0.036	1
o-Xylene	0.058	J	mg/kg	0.065	0.019	1
Xylenes, Total	0.12	J	mg/kg	0.065	0.019	1
Isopropylbenzene	0.044	J	mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.13	0.022	1
Naphthalene	0.12	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	140	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13
 Client ID: PB-36-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:50
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 21:43
 Analyst: NLK
 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	0.00056	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	0.00082	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00082	J	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
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-14
 Client ID: PB-36-18-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 13:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/11/21 22:12
 Analyst: JC
 Percent Solids: 81%

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	0.010	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	0.017	J	mg/kg	0.064	0.0090	1
p/m-Xylene	0.051	J	mg/kg	0.13	0.036	1
o-Xylene	0.053	J	mg/kg	0.064	0.018	1
Xylenes, Total	0.10	J	mg/kg	0.064	0.018	1
Isopropylbenzene	0.0071	J	mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.13	0.021	1
Naphthalene	0.081	J	mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	164	Q	70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15
 Client ID: PB-144-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:30
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 22:57
 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	0.0021	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	0.00030	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	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16
 Client ID: PB-144-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:45
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 23:17
 Analyst: NLK
 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	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	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	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	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	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17
 Client ID: DUP-19
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/10/21 23:38
 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	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		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
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
 Client ID: FB-211005-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/08/21 12:34
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/08/21 10:54

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: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
 Client ID: FB-211005-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 12:29
 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	104		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
 Client ID: FB-211005-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 15:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/08/21 12:40
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/08/21 10:54

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: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
 Client ID: FB-211005-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 15:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 12:50
 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	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-20
 Client ID: TB-211005
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 10/08/21 12:46
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 10/08/21 10:54

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: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-20
 Client ID: TB-211005
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/09/21 13:10
 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	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/08/21 12:15
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 18-20 Batch: WG1556099-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/10/21 08:50
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1556893-5					
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	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 10/11/21 07:21
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1556894-10					
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	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 10/10/21 08:50
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-03 Batch: WG1556894-5					
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	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06 Batch: WG1556922-10					
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	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	93		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 10/10/21 14:48
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06 Batch: WG1556922-5					
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	0.041	J	mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 18-20 Batch: WG1557030-5					
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	101		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09-10,13 Batch: WG1557082-5					
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	0.00080	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00080	J	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	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08,12 Batch: WG1557083-5					
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	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	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	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-17 Batch: WG1557127-5					
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	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,11 Batch: WG1557470-5					
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	0.00081	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00081	J	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	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1557472-5					
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	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	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	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 18-20 Batch: WG1556099-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1556893-3 WG1556893-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-03 Batch: WG1556894-3 WG1556894-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		30
Naphthalene	94		97		70-130	3		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	103		104		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: L2154149
Report Date: 10/19/21

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 Batch: WG1556922-3 WG1556922-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	96		101		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		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: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06 Batch: WG1556922-8 WG1556922-9								
Methyl tert butyl ether	80		76		66-130	5		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	95		92		70-130	3		30
Toluene	91		87		70-130	4		30
1,2-Dibromoethane	90		86		70-130	5		30
Ethylbenzene	94		89		70-130	5		30
p/m-Xylene	95		90		70-130	5		30
o-Xylene	93		90		70-130	3		30
Isopropylbenzene	101		96		70-130	5		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		95		70-130	4		30
Naphthalene	96		93		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	102		102		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		101		70-130
Dibromofluoromethane	95		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 18-20 Batch: WG1557030-3 WG1557030-4								
Methyl tert butyl ether	77		76		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	93		93		70-130	0		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	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	102		104		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	102		101		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09-10,13 Batch: WG1557082-3 WG1557082-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	105		105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08,12 Batch: WG1557083-3 WG1557083-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	104		105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-17 Batch: WG1557127-3 WG1557127-4								
Methyl tert butyl ether	85		91		66-130	7		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		97		70-130	3		30
Ethylbenzene	95		93		70-130	2		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	98		94		70-130	4		30
1,3,5-Trimethylbenzene	97		92		70-130	5		30
1,2,4-Trimethylbenzene	96		92		70-130	4		30
Naphthalene	85		88		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	100		96		70-130
Dibromofluoromethane	92		94		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,11 Batch: WG1557470-3 WG1557470-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1557472-3 WG1557472-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15
 Client ID: PB-144-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:30
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 10/08/21 18:29
 Analyst: SLR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 10/07/21 12:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	25.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	25.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16 D
 Client ID: PB-144-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:45
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 10/08/21 18:52
 Analyst: SLR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 10/07/21 12:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	2600	320	5
Benzo(a)anthracene	17000		ug/kg	1600	300	5
Benzo(a)pyrene	12000		ug/kg	2100	650	5
Benzo(b)fluoranthene	4700		ug/kg	1600	450	5
Chrysene	20000		ug/kg	1600	280	5
Anthracene	1100	J	ug/kg	1600	520	5
Benzo(ghi)perylene	5000		ug/kg	2100	310	5
Fluorene	1100	J	ug/kg	2600	260	5
Phenanthrene	1700		ug/kg	1600	320	5
Pyrene	41000		ug/kg	1600	260	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		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: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
 Client ID: FB-211005-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/12/21 01:06
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 10/10/21 07:46

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
2-Fluorophenol	52		21-120
Phenol-d6	41		10-120
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	82		41-149



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
 Client ID: FB-211005-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 15:00
 Date Received: 10/05/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 10/12/21 01:25
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 10/10/21 07:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.05	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.02	J	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	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
2-Fluorophenol	39		21-120
Phenol-d6	37		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	45		10-120
4-Terphenyl-d14	75		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 10/07/21 22:15
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 10/06/21 15:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1555279-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	39.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	89		25-120
Phenol-d6	93		10-120
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	91		30-120
2,4,6-Tribromophenol	87		10-136
4-Terphenyl-d14	101		18-120



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:12
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 18-19 Batch: WG1556643-1					
Naphthalene	0.07	J	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	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1555279-2 WG1555279-3								
Naphthalene	65		83		40-140	24		50
Benzo(a)anthracene	69		93		40-140	30		50
Benzo(a)pyrene	71		95		40-140	29		50
Benzo(b)fluoranthene	67		89		40-140	28		50
Chrysene	65		87		40-140	29		50
Anthracene	69		91		40-140	28		50
Benzo(ghi)perylene	69		92		40-140	29		50
Fluorene	69		90		40-140	26		50
Phenanthrene	67		88		40-140	27		50
Pyrene	69		91		35-142	28		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		88		25-120
Phenol-d6	72		93		10-120
Nitrobenzene-d5	68		88		23-120
2-Fluorobiphenyl	68		87		30-120
2,4,6-Tribromophenol	65		86		10-136
4-Terphenyl-d14	74		99		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 18-19 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149



METALS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01

Date Collected: 10/05/21 09:25

Client ID: PB-36-01-SS01

Date Received: 10/05/21

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	60.4		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 00:25	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02

Date Collected: 10/05/21 09:40

Client ID: PB-36-02-SS01

Date Received: 10/05/21

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	7.86		mg/kg	2.36	0.126	1	10/07/21 08:00	10/07/21 23:07	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03

Date Collected: 10/05/21 10:00

Client ID: PB-36-03-SS01

Date Received: 10/05/21

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	8.50		mg/kg	2.44	0.131	1	10/07/21 08:00	10/07/21 23:12	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04

Date Collected: 10/05/21 10:25

Client ID: PB-36-05-SS01

Date Received: 10/05/21

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	8.80		mg/kg	2.38	0.128	1	10/07/21 08:00	10/07/21 23:17	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-05

Date Collected: 10/05/21 10:35

Client ID: PB-36-06-SS01

Date Received: 10/05/21

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	10.8		mg/kg	2.41	0.129	1	10/07/21 08:00	10/07/21 23:21	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06

Date Collected: 10/05/21 10:50

Client ID: PB-36-07-SS01

Date Received: 10/05/21

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	10.0		mg/kg	2.48	0.133	1	10/07/21 08:00	10/07/21 23:26	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07

Date Collected: 10/05/21 11:15

Client ID: PB-36-08-SS01

Date Received: 10/05/21

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	8.03		mg/kg	2.47	0.132	1	10/07/21 08:00	10/08/21 00:11	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08

Date Collected: 10/05/21 11:25

Client ID: PB-36-10-SS01

Date Received: 10/05/21

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	8.22		mg/kg	2.42	0.130	1	10/07/21 08:00	10/08/21 00:16	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09

Date Collected: 10/05/21 11:50

Client ID: PB-36-12-SS01

Date Received: 10/05/21

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	45.4		mg/kg	11.6	0.623	5	10/07/21 08:00	10/11/21 20:31	EPA 3050B	1,6010D	BV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10

Date Collected: 10/05/21 12:05

Client ID: PB-36-13-SS01

Date Received: 10/05/21

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	15.8		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 00:58	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11

Date Collected: 10/05/21 12:15

Client ID: PB-36-15-SS01

Date Received: 10/05/21

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	7.32		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:02	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12

Date Collected: 10/05/21 12:30

Client ID: PB-36-16-SS01

Date Received: 10/05/21

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	87.5		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 01:07	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13

Date Collected: 10/05/21 12:50

Client ID: PB-36-17-SS01

Date Received: 10/05/21

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	10.7		mg/kg	2.40	0.128	1	10/07/21 08:00	10/08/21 01:12	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-14

Date Collected: 10/05/21 13:00

Client ID: PB-36-18-SS01

Date Received: 10/05/21

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	112		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 01:16	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15

Date Collected: 10/05/21 14:30

Client ID: PB-144-01-SS01

Date Received: 10/05/21

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	8.73		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:21	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16

Date Collected: 10/05/21 14:45

Client ID: PB-144-02-SS01

Date Received: 10/05/21

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	143		mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 01:26	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17

Date Collected: 10/05/21 00:00

Client ID: DUP-19

Date Received: 10/05/21

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	26.8		mg/kg	2.35	0.126	1	10/07/21 08:00	10/08/21 01:31	EPA 3050B	1,6010D	SV



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18

Date Collected: 10/05/21 12:40

Client ID: FB-211005-1

Date Received: 10/05/21

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	10/07/21 08:08	10/07/21 17:35	EPA 3005A	1,6020B	PS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19

Date Collected: 10/05/21 15:00

Client ID: FB-211005-2

Date Received: 10/05/21

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	10/07/21 08:08	10/07/21 17:40	EPA 3005A	1,6020B	PS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

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): 18-19 Batch: WG1555180-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 15:15	1,6020B	PS

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): 01-17 Batch: WG1555222-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 00:02	1,6010D	SV

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: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 18-19 Batch: WG1555180-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-17 Batch: WG1555222-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

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): 18-19			QC Batch ID: WG1555180-3			QC Sample: L2154178-01			Client ID: MS Sample			
Lead, Total	7.869	530	520.1	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-17			QC Batch ID: WG1555222-3			QC Sample: L2154149-01			Client ID: PB-36-01-SS01			
Lead, Total	60.4	52.2	90.3	57	Q	-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2154149

Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-4 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	42.2	mg/kg	35	Q	20

**Lab Serial Dilution
Analysis
Batch Quality Control**

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-6 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	80.4	mg/kg	33	Q	20



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01
 Client ID: PB-36-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 09:25
 Date Received: 10/05/21
 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	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
Client ID: PB-36-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 09:40
Date Received: 10/05/21
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	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03

Date Collected: 10/05/21 10:00

Client ID: PB-36-03-SS01

Date Received: 10/05/21

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	79.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04

Date Collected: 10/05/21 10:25

Client ID: PB-36-05-SS01

Date Received: 10/05/21

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	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-05
Client ID: PB-36-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:35
Date Received: 10/05/21
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	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06

Date Collected: 10/05/21 10:50

Client ID: PB-36-07-SS01

Date Received: 10/05/21

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	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07
Client ID: PB-36-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 11:15
Date Received: 10/05/21
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	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-08

Date Collected: 10/05/21 11:25

Client ID: PB-36-10-SS01

Date Received: 10/05/21

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	81.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-09

Date Collected: 10/05/21 11:50

Client ID: PB-36-12-SS01

Date Received: 10/05/21

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	83.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-10

Date Collected: 10/05/21 12:05

Client ID: PB-36-13-SS01

Date Received: 10/05/21

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	82.1		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11

Date Collected: 10/05/21 12:15

Client ID: PB-36-15-SS01

Date Received: 10/05/21

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	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12

Date Collected: 10/05/21 12:30

Client ID: PB-36-16-SS01

Date Received: 10/05/21

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	83.6		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-13

Date Collected: 10/05/21 12:50

Client ID: PB-36-17-SS01

Date Received: 10/05/21

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	79.0		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-14

Date Collected: 10/05/21 13:00

Client ID: PB-36-18-SS01

Date Received: 10/05/21

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	81.4		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**SAMPLE RESULTS**

Lab ID: L2154149-15

Date Collected: 10/05/21 14:30

Client ID: PB-144-01-SS01

Date Received: 10/05/21

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	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16

Date Collected: 10/05/21 14:45

Client ID: PB-144-02-SS01

Date Received: 10/05/21

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	93.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17
 Client ID: DUP-19
 Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
 Date Received: 10/05/21
 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	82.3		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2154149

Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-17 QC Batch ID: WG1554975-1 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Solids, Total	79.7	80.3	%	1		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**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(*)
L2154149-01A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-01B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-02A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-02B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-03A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-03B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-04A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-04B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-05A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-05B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-05C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-05D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-06A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-06B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-07A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-07B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-08B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-09B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-10B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-11B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-12A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-12B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-13A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-13B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-14A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-14B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-15B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-16A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-16B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2154149**Project Number:** 200.00135.005.03**Report Date:** 10/19/21**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-16C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-16D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-16F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-17A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-17B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-18A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-18B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-18C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-18D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-19A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-19B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-19C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-19D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-20A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20C	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)
L2154149-20D	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

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: L2154149
Report Date: 10/19/21

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: L2154149
Report Date: 10/19/21

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: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

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-Terpeneol

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-Terpeneol; 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

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

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 confirmed if pre-approved!)

Date Due: _____ Time: _____

Date Rec'd in Lab: **10/06/21**

ALPHA Job #: **L2154149**

Report Information - Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: _____

Regulatory Requirements/Report Limits

State /Fed Program _____ Criteria _____

Client Information

Client: **RANSAM CONSULTING**

Address: **2127 HAMILTON AVE**

215-901-4974

Phone: **TRENTON, NJ 08619**

Fax: _____

Email: **WILLIAM.SCHMIDT@RANSAMENV.**

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

REPORT ONLY PROJECT SPECIFIC ANALYTE LIST. SEE ATTACHED

**ALSO SEND TO: EDD@TERRAPHASE.COM
J.JERAY@CILCOGLOBAL.COM**

ANALYSIS
PAPER SIMULTANEOUS 1,2

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					Sample Specific Comments	
		Date	Time								
541149-01	PB-36-01-5501	10/5	0925	S	TB	X					
-02	PB-36-02-5501		0940			X					
-03	PB-36-03-5501		1000			X					
-04	PB-36-05-5501		1025			X					
-05	PB-36-06-5501		1035			X					
-06	PB-36-07-5501		1050			X					
-07	PB-36-08-5501		1115			X					
-08	PB-36-10-5501		1125			X					
-09	PB-36-12-5501		1150			X					
-10	PB-36-13-5501		1205			X					

Container Type _____

Preservative _____

Relinquished By: _____

Date/Time: **10/5 1545**

Received By: _____

Date/Time: **10/5/21 15:45**

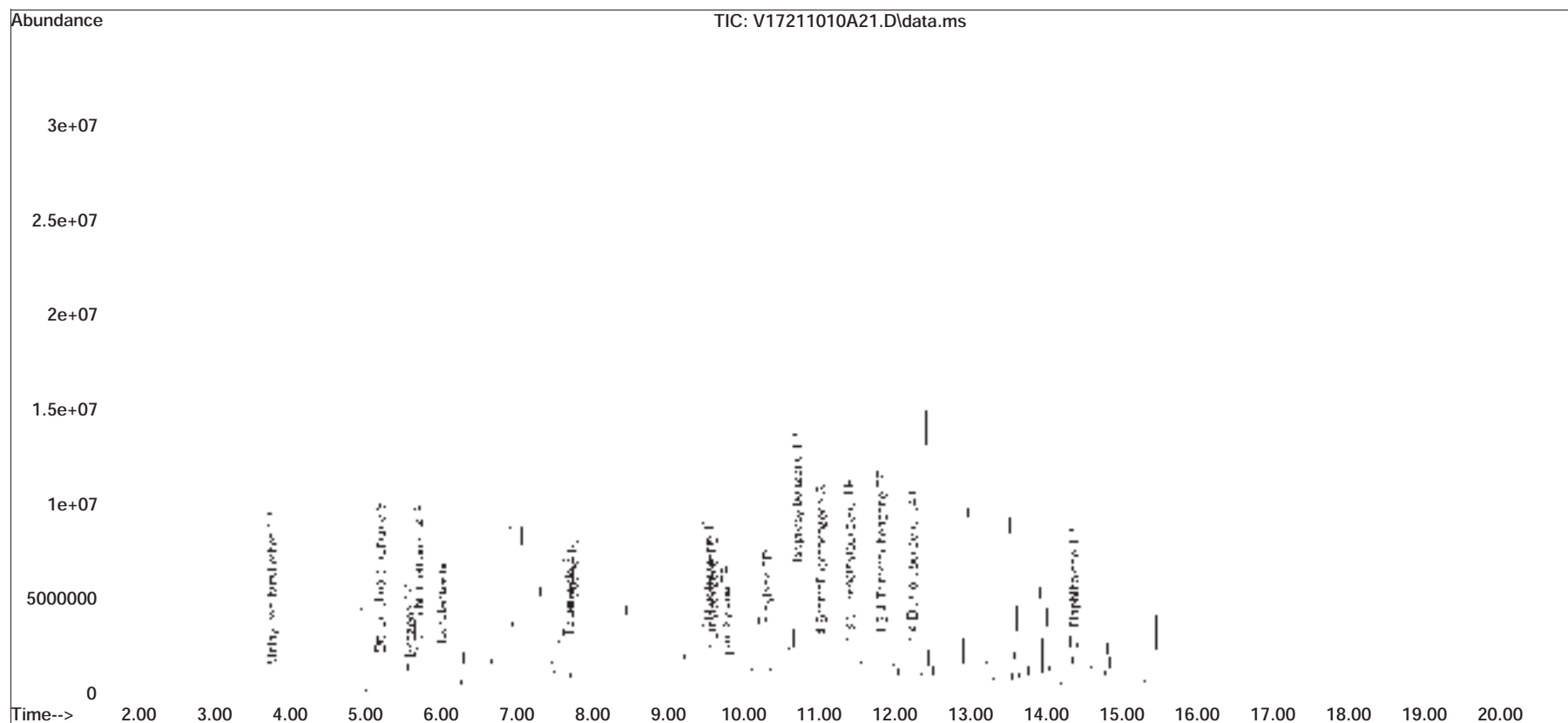
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A21.D
Acq On : 10 Oct 2021 04:13 pm
Operator : VOA117:NLK
Sample : 12154149-01,31H,4.59,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 11 06:26:04 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

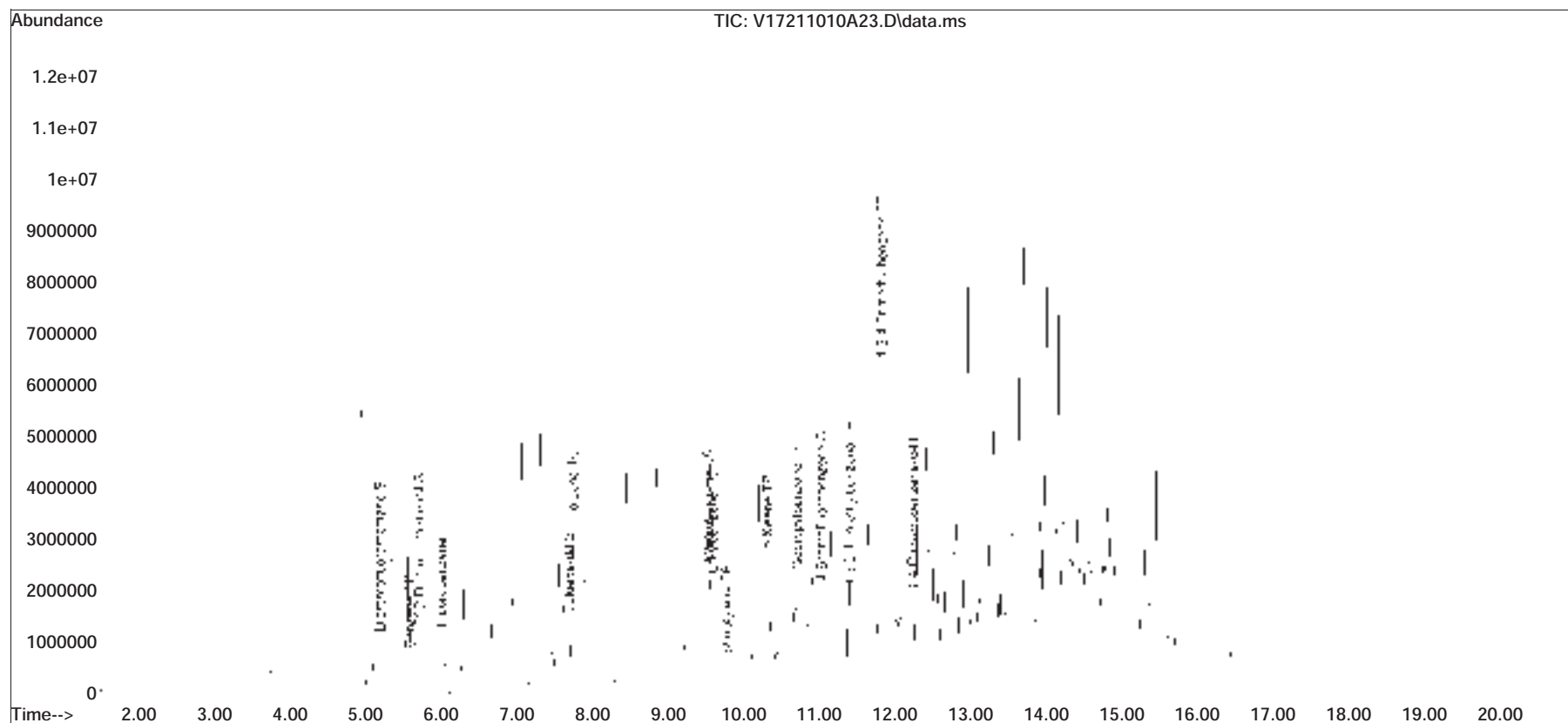


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A23.D
Acq On : 10 Oct 2021 05:05 pm
Operator : VOA117:NLK
Sample : 12154149-02,31H,5.29,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Oct 11 07:34:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

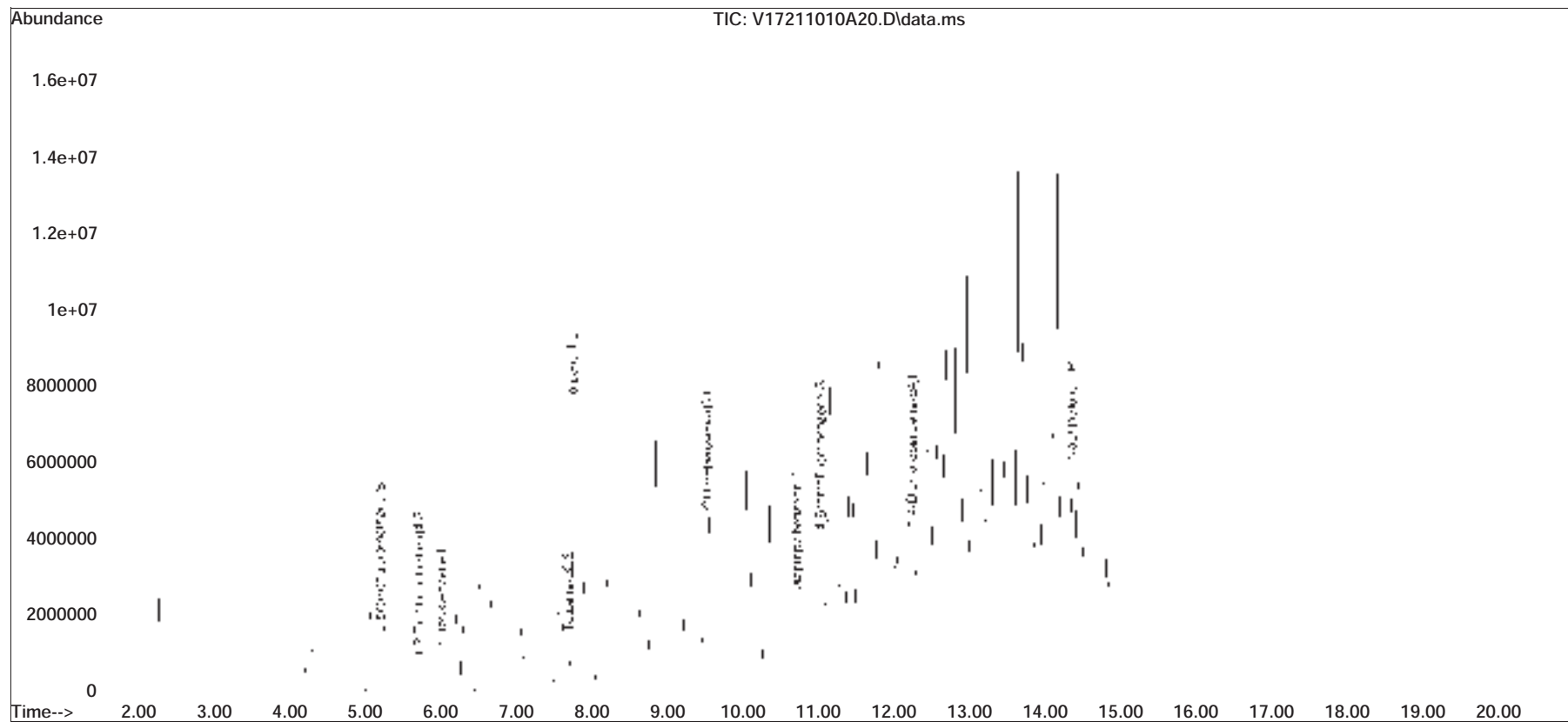


Quantitation Report (QT Reviewed)

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Data File : V17211010A20.D
Acq On : 10 Oct 2021 03:47 pm
Operator : VOA117:NLK
Sample : 12154149-04,31,6.30,5,,b
Misc : WG1556893,ICAL18358
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Oct 11 07:28:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

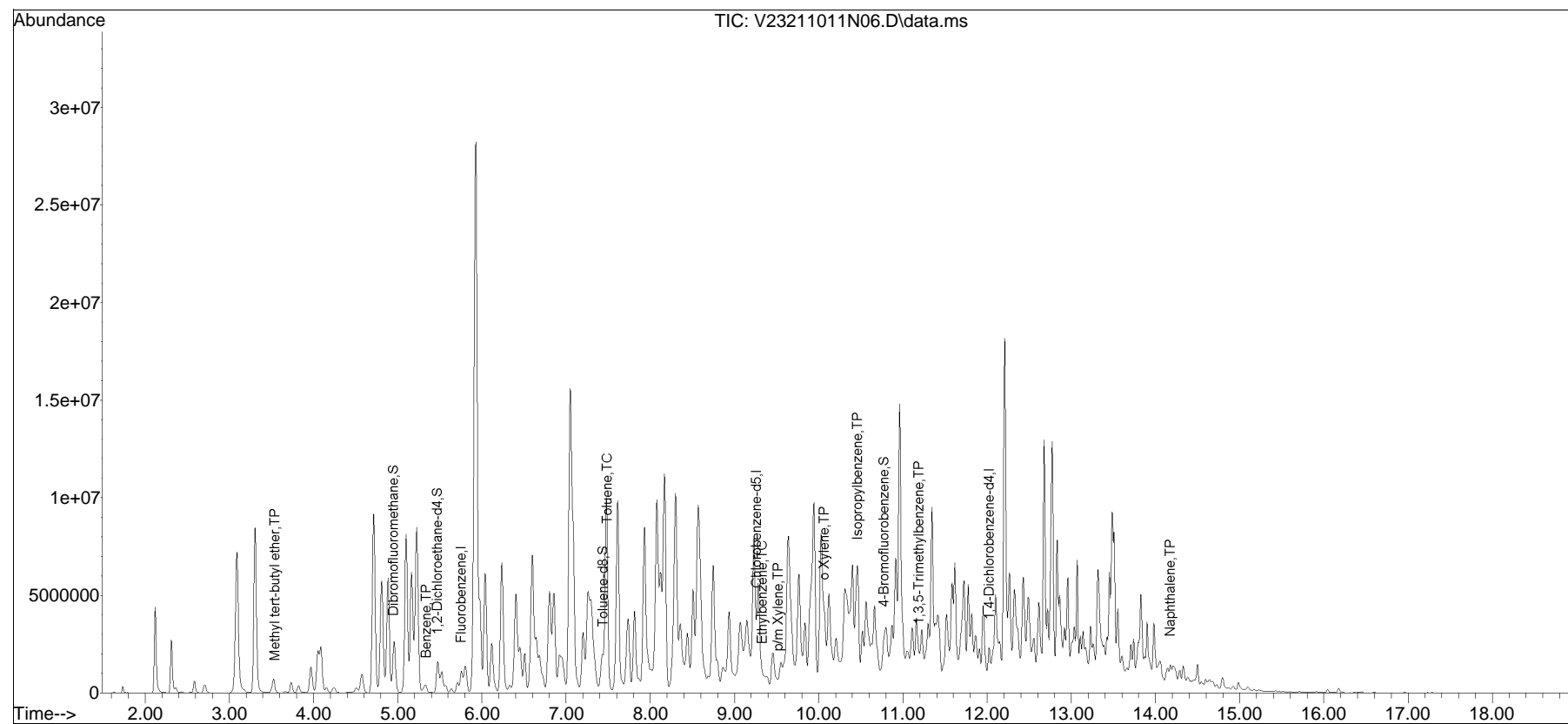


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N06.D
Acq On : 11 Oct 2021 09:22 pm
Operator : VOA123:JC
Sample : L2154149-07,31,6.16,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 12 08:20:34 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

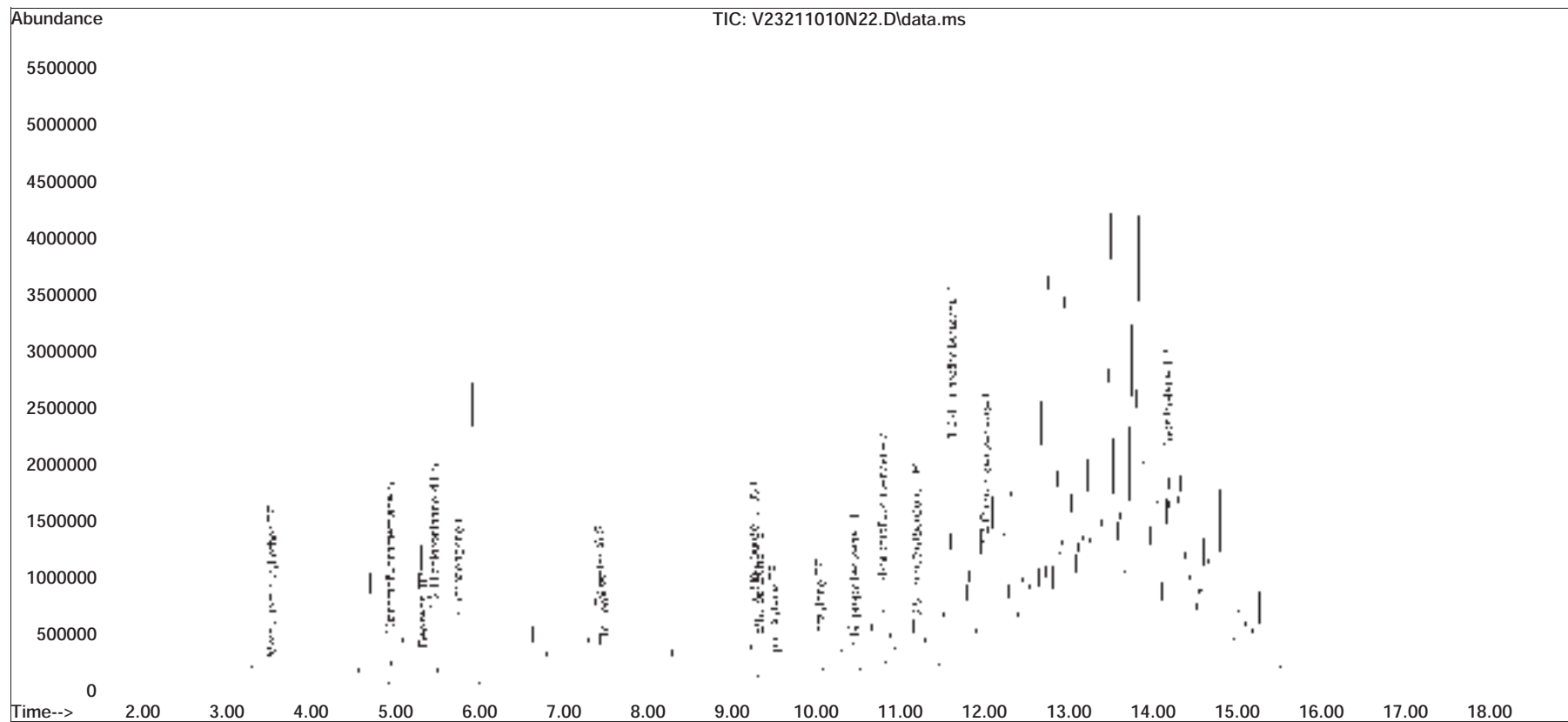


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211010N\
Data File : V23211010N22.D
Acq On : 10 Oct 2021 10:33 pm
Operator : VOA123:NLK
Sample : L2154149-08D,31H,6.27,5,0.020,,A
Misc : WG1557083,ICAL18187
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 11 11:57:37 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•

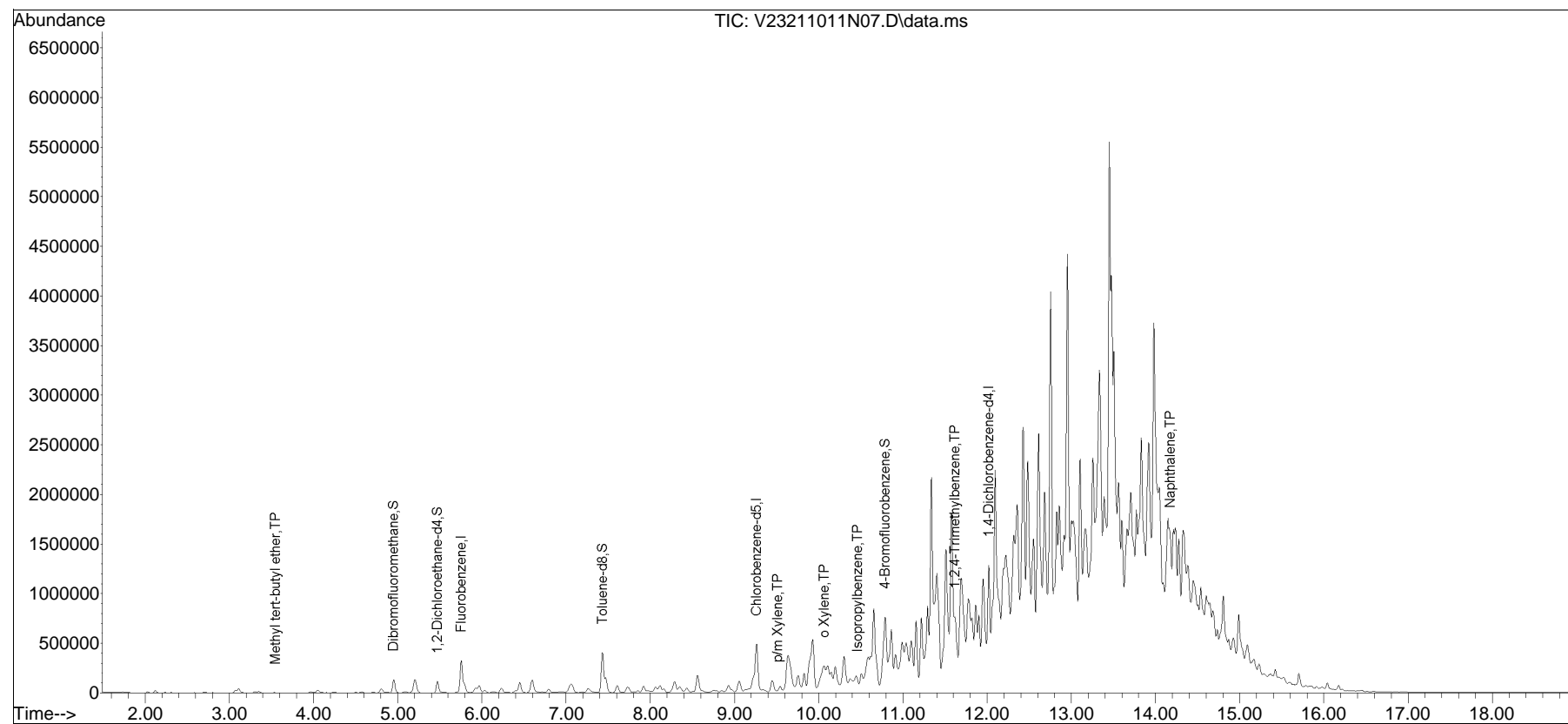


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N07.D
Acq On : 11 Oct 2021 09:47 pm
Operator : VOA123:JC
Sample : L2154149-11,31,6.30,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 12 08:12:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

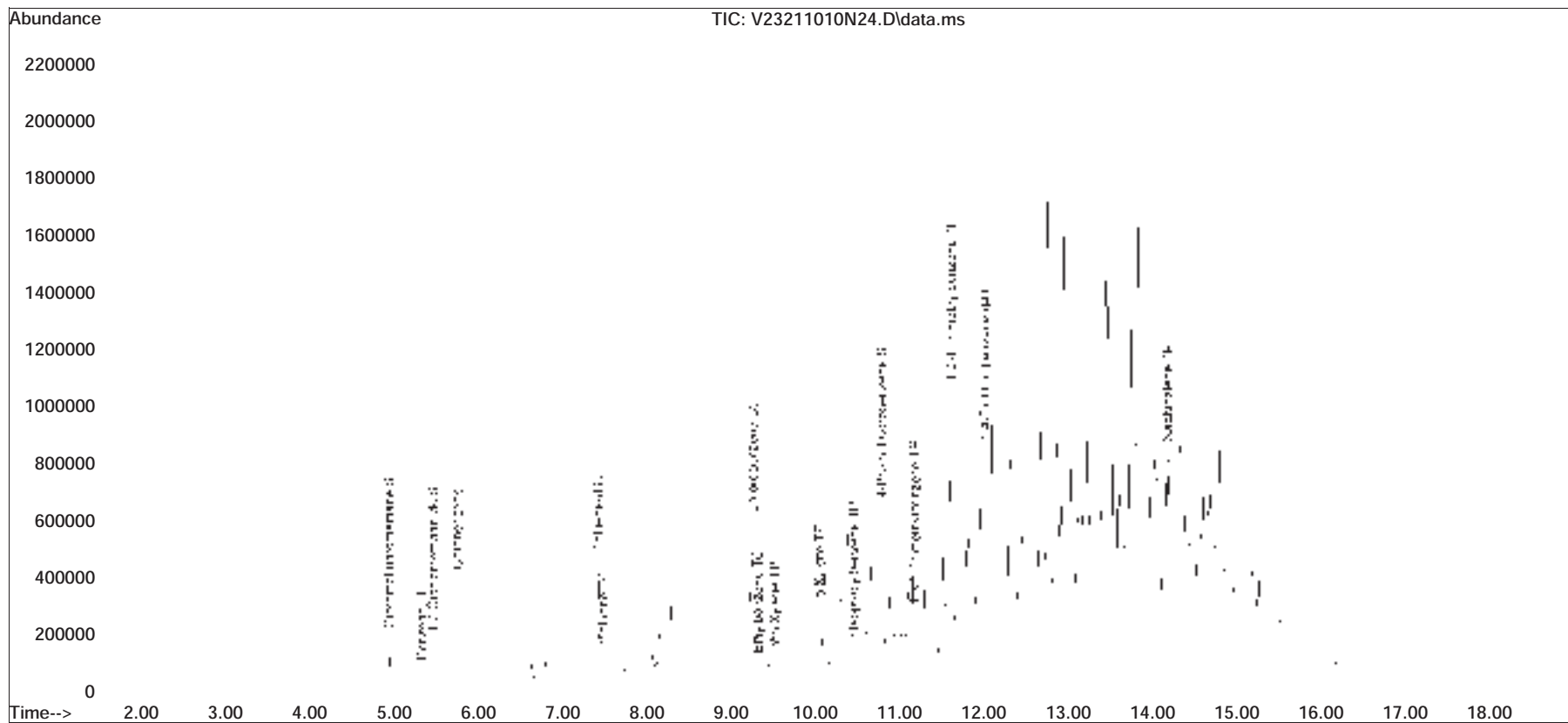


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211010N\
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Acq On : 10 Oct 2021 11:23 pm
Operator : VOA123:NLK
Sample : L2154149-12,31H,5.42,5,0.100,,A
Misc : WG1557083,ICAL18187
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 11 11:43:54 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•

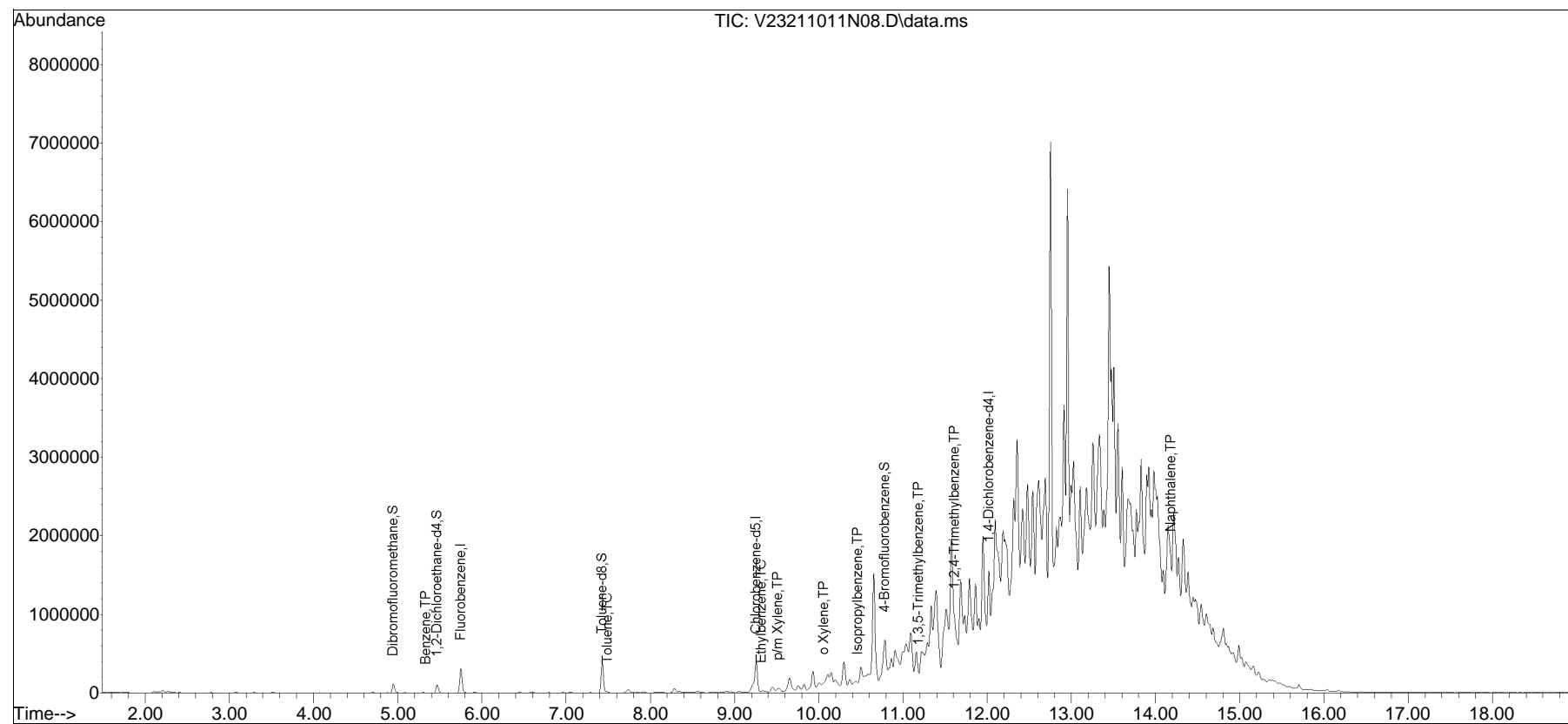


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
 Data File : V23211011N08.D
 Acq On : 11 Oct 2021 10:12 pm
 Operator : VOA123:JC
 Sample : L2154149-14,31H,5.86,5,0.100,,A
 Misc : WG1557472,ICAL18187
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 12 08:12:08 2021
 Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jul 28 08:09:26 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

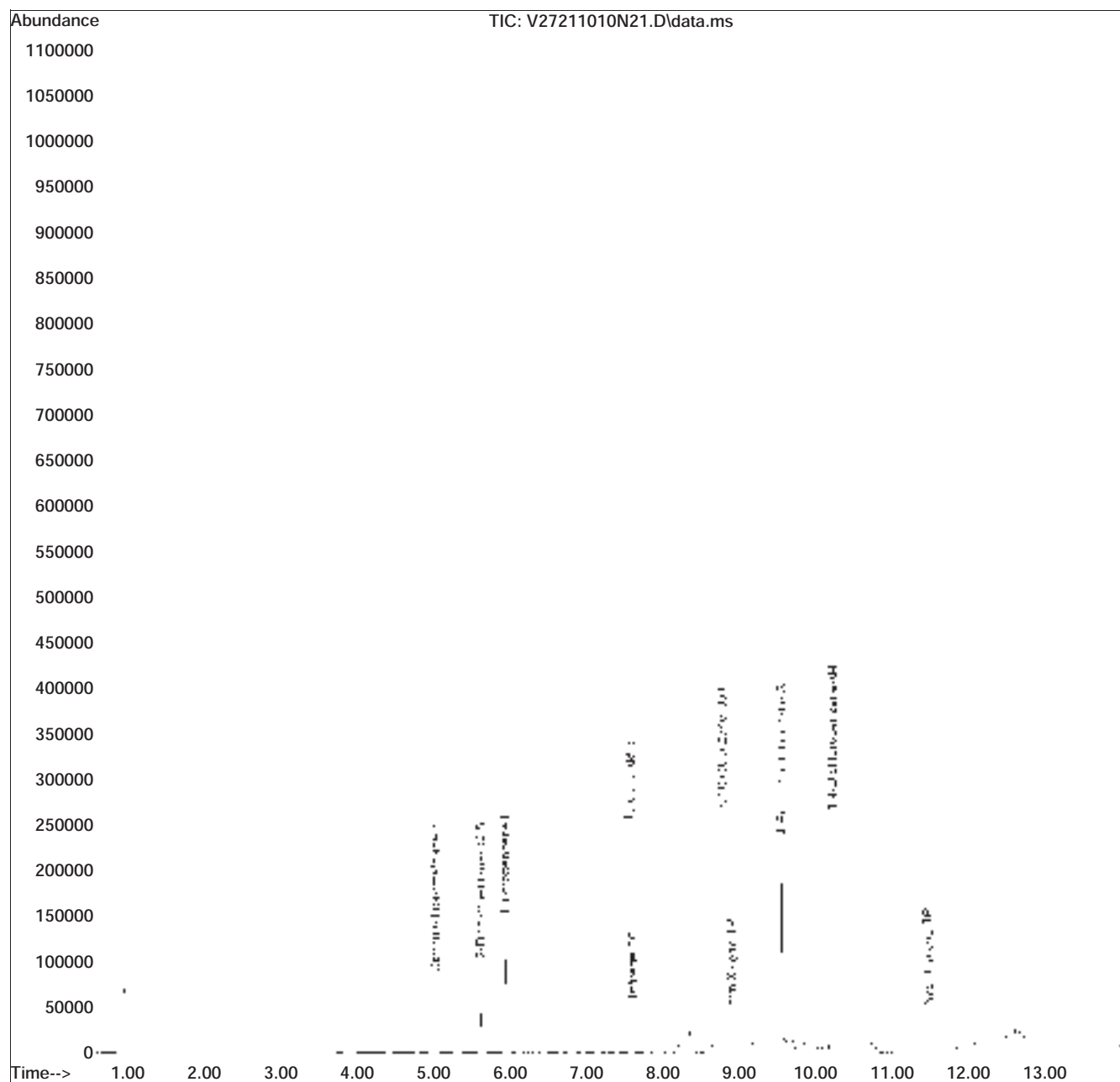


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2021\211010N\
Data File : V27211010N21.D
Acq On : 10 Oct 2021 11:17 pm
Operator : VOA127:NLK
Sample : L2154149-16,31,5.87,5,,B
Misc : WG1557127,ICAL18360
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 11 12:30:28 2021
Quant Method : I:\VOLATILES\VOA127\2021\211010N\V127_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 10:48:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V27211010N01.D•





ANALYTICAL REPORT

Lab Number:	L2206339
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	03/29/22

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: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Number: L2206339

Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206339-01	PB-204-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 10:30	02/07/22
L2206339-02	PB-204-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 10:40	02/07/22
L2206339-03	PB-204-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 11:30	02/07/22
L2206339-04	PB-204-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 11:40	02/07/22
L2206339-05	PB-204-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 11:50	02/07/22
L2206339-06	PB-204-06R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 12:20	02/07/22
L2206339-07	PB-204-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 12:25	02/07/22
L2206339-08	PB-204-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 12:30	02/07/22
L2206339-09	PB-33-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 13:00	02/07/22
L2206339-10	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2206339-11	PB-29-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 14:05	02/07/22
L2206339-12	PB-29-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:15	02/07/22
L2206339-13	PB-29-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:20	02/07/22
L2206339-14	PB-29-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:45	02/07/22
L2206339-15	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22
L2206339-16	FB-220207-1	WATER	PHILADELPHIA, PA	02/07/22 12:00	02/07/22
L2206339-17	FB-220207-2	WATER	PHILADELPHIA, PA	02/07/22 15:00	02/07/22
L2206339-18	TB-220207	WATER	PHILADELPHIA, PA	02/07/22 00:00	02/07/22

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2206339-14.

Report Revision

February 22, 2022: This report includes the results of the Volatile Organics analysis performed on L2206339-07.

Report Submission

February 21, 2022: This final report includes the results of all requested analyses.

February 14, 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

L2206339-06 and -07: At the client's request, Naphthalene was analyzed by Method 8270D.

L2206339-16 and -17: Sample containers for Semivolatile Organics were received, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206339-01: 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.

L2206339-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (256%) and 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.

L2206339-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
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Case Narrative (continued)

L2206339-07: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (164%) and 4-bromofluorobenzene (148%); 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.

L2206339-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); 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

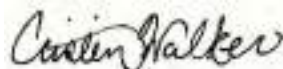
L2206339-04 and -12: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

The WG1602754-3 MS recovery, performed on L2206339-03, is outside the acceptance criteria for lead (178%). A post digestion spike was performed and yielded an unacceptable recovery of 61%. 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 WG1602754-6 serial dilution analysis, associated with L2206339-03, had a %D above the acceptance criteria for lead (22%).

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: 03/29/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-01
 Client ID: PB-204-11R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 10:30
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 10:02
 Analyst: AJK
 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-Dibromoethane	ND		mg/kg	0.034	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	256	Q	70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	65	Q	70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-07
 Client ID: PB-204-06R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:25
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 20:32
 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						
Benzene	0.036		mg/kg	0.00048	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	164	Q	70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-09 D
 Client ID: PB-33-05R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 09:21
 Analyst: AJK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	5.2		mg/kg	0.053	0.018	2
Toluene	0.19		mg/kg	0.11	0.058	2
Ethylbenzene	21.		mg/kg	0.11	0.015	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	148	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-14 D
 Client ID: PB-29-03R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:45
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 09:41
 Analyst: AJK
 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	4.6		mg/kg	2.6	0.26	25
Benzene	110		mg/kg	0.65	0.22	25
Toluene	200		mg/kg	1.3	0.70	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-16
 Client ID: FB-220207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/08/22 12:59
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-17
 Client ID: FB-220207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 15:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/08/22 13:20
 Analyst: AJK

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
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-18
 Client ID: TB-220207
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 00:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/08/22 13:40
 Analyst: AJK

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
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	107		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 02/08/22 08:13
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1602841-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130



Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 08:38
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,09,14 Batch: WG1604734-5					
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
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	108		70-130



Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07 Batch: WG1607838-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1602841-3 WG1602841-4								
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	97		100		70-130	3		20
Ethylbenzene	100		110		70-130	10		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,09,14 Batch: WG1604734-3 WG1604734-4								
Methyl tert butyl ether	82		82		66-130	0		30
Benzene	97		103		70-130	6		30
Toluene	97		104		70-130	7		30
1,2-Dibromoethane	92		92		70-130	0		30
Ethylbenzene	99		105		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07 Batch: WG1607838-3 WG1607838-4								
Benzene	101		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		88		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	93		90		70-130



SEMIVOLATILES

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-06
 Client ID: PB-204-06R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:20
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/13/22 13:04
 Analyst: CMM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:15

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	0.21	0.026	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	66		18-120

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-07
 Client ID: PB-204-06R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:25
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/13/22 13:28
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:15

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	70		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	58		18-120



Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-16
 Client ID: FB-220207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/13/22 11:53
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	91		15-120
4-Terphenyl-d14	102		41-149

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-17
 Client ID: FB-220207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 15:00
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/13/22 12:10
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/12/22 10:27

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	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	76		41-149

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/13/22 11:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 11:37
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 16-17 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 16-17 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149



METALS



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-03

Date Collected: 02/07/22 11:30

Client ID: PB-204-01R-0.0-0.5

Date Received: 02/07/22

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	61.6		mg/kg	2.32	0.125	1	02/08/22 22:02	02/10/22 12:03	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-04

Date Collected: 02/07/22 11:40

Client ID: PB-204-01R-6.0-6.5

Date Received: 02/07/22

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	9.16	J	mg/kg	11.9	0.639	5	02/08/22 22:02	02/10/22 14:47	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-11

Date Collected: 02/07/22 14:05

Client ID: PB-29-02R-0.0-0.5

Date Received: 02/07/22

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	2500		mg/kg	2.34	0.125	1	02/08/22 22:02	02/10/22 13:07	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-12

Date Collected: 02/07/22 14:15

Client ID: PB-29-02R-6.0-6.5

Date Received: 02/07/22

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	9.53	J	mg/kg	12.2	0.657	5	02/08/22 22:02	02/10/22 14:52	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-16

Date Collected: 02/07/22 12:00

Client ID: FB-220207-1

Date Received: 02/07/22

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	02/09/22 04:04	02/09/22 11:01	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-17

Date Collected: 02/07/22 15:00

Client ID: FB-220207-2

Date Received: 02/07/22

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	02/09/22 04:04	02/09/22 11:06	EPA 3005A	1,6020B	CD



Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

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): 16-17 Batch: WG1602709-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 10:30	1,6020B	CD

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): 03-04,11-12 Batch: WG1602754-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/08/22 22:02	02/10/22 11:40	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1602709-2								
Lead, Total	93		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 Batch: WG1602754-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Lab Number: L2206339

Project Number: 200.00135.005.03

Report Date: 03/29/22

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): 16-17 QC Batch ID: WG1602709-3 QC Sample: L2206625-01 Client ID: MS Sample												
Lead, Total	ND	530	488.4	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-3 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5												
Lead, Total	61.6	49	149	178	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Number: L2206339

Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-4 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	63.4	mg/kg	3		20

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2206339

Report Date: 03/29/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-6 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	75.0	mg/kg	22	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-01

Date Collected: 02/07/22 10:30

Client ID: PB-204-11R-6.0-6.5

Date Received: 02/07/22

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	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-03

Date Collected: 02/07/22 11:30

Client ID: PB-204-01R-0.0-0.5

Date Received: 02/07/22

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	81.8		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-04

Date Collected: 02/07/22 11:40

Client ID: PB-204-01R-6.0-6.5

Date Received: 02/07/22

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	79.3		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-06

Date Collected: 02/07/22 12:20

Client ID: PB-204-06R-0.0-0.5

Date Received: 02/07/22

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	78.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-07

Date Collected: 02/07/22 12:25

Client ID: PB-204-06R-6.0-6.5

Date Received: 02/07/22

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	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-09

Date Collected: 02/07/22 13:00

Client ID: PB-33-05R-6.0-6.5

Date Received: 02/07/22

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	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-11

Date Collected: 02/07/22 14:05

Client ID: PB-29-02R-0.0-0.5

Date Received: 02/07/22

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	82.4		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-12

Date Collected: 02/07/22 14:15

Client ID: PB-29-02R-6.0-6.5

Date Received: 02/07/22

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	80.7		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206339-14

Date Collected: 02/07/22 14:45

Client ID: PB-29-03R-6.0-6.5

Date Received: 02/07/22

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	83.5		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI



Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Number: L2206339

Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09,11-12,14 QC Batch ID: WG1602482-1 QC Sample: L2206339-01 Client ID: PB-204-11R-6.0-6.5						
Solids, Total	83.4	83.1	%	0		20



Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**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(*)
L2206339-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-02A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-02B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-03A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-03B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-04A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-04B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-05A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-05B	Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		HOLD-METAL(180)
L2206339-06A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-06B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-06E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-07A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2206339-07B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2206339-07C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)

Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-07D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-07E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-08A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-08B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-08E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-8270(14)
L2206339-09A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-09B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-10A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-10B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-11A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-11B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-12A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-12B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-13A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-13B	Glass 250ml/8oz unpreserved	B	NA		3.8	Y	Absent		HOLD-METAL(180)
L2206339-14A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2206339-14B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-15A	Vial MeOH preserved	B	NA		3.8	Y	Absent		HOLD-8260HLW(14)
L2206339-15B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-15C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)

Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-15D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-16A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-16E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-16F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-17E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-18A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-18B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)

Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2206339**Project Number:** 200.00135.005.03**Report Date:** 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

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.

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

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-Terpeneol

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-Terpeneol; 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: PES Refinery - ~~Delineation~~
AST CLOSURE

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: **5-DAY** Time:

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3286

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 per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and ljeray@hilcoglobal.com

Date Rec'd in Lab: 1 **2/8/22**

ALPHA Job #: **L2206339**

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

PADEP Storage Tank Sampling

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8280)	ATMUL BENZENE	1,2-DBA (DIBENZOETHANE)							
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SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
06339-01	PB-204-112-6.0-6.5	2/7	1030	S	PS
02	PB-204-112-14.0-14.5		1040		
03	PB-204-012-0.0-0.5		1130		
04	PB-204-012-6.0-6.5		1140		
05	PB-204-012-14.0-14.5		1150		
06	PB-204-062-0.0-0.5		1220		
07	PB-204-062-6.0-6.5		1225		
08	PB-204-062-14.0-14.5		1230		
09	PB-33-052-6.0-6.5		1300		
10	PB-33-052-14.0-14.5		1310		

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/7 1515	<i>[Signature]</i>	2/7 1515
<i>[Signature]</i>	2/7 2020	<i>[Signature]</i>	2/7-180
<i>[Signature]</i>	2/7/22	<i>[Signature]</i>	2/7/22 2030

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 2



Westborough, MA
 TEL: 508-898-9220
 FAX: 508-896-9193

Mansfield, MA
 TEL: 508-822-9300
 FAX: 508-822-3288

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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: PES Refinery - ~~Delineation~~
AST CLOSURE

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: S-DAY Time:

Date Rec'd in Lab: 1 2/8/22

ALPHA Job #: 2206339

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: PADEP Storage Tank Sampling
 Criteria:

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8260)	ETHYL-BENZENE	1,2-DBA (DIBENZO(A,H)ANTHRAcene)										
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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		
060339-11	PB-29-02R-0.0-0.5	2/7	1405	S	TS
12	PB-29-02R-6.0-6.5		1415		
13	PB-29-02R-14.0-14.5		1420		
14	PB-29-03R-6.0-6.5		1445		
15	PB-29-03R-14.0-14.5		1455		
16	Tenax FB-220207-1		1700		
17	FB-220207-2		1500		
18	TB-220207		-		

Container Type	Preservative
-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/7 1515	<i>[Signature]</i>	2/7 1515
<i>[Signature]</i>	2/7 1800	<i>[Signature]</i>	2/7 1800
<i>[Signature]</i>	2/7 2030	<i>[Signature]</i>	2/7 2030

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. 61-01141
 (REV. 6-2015)

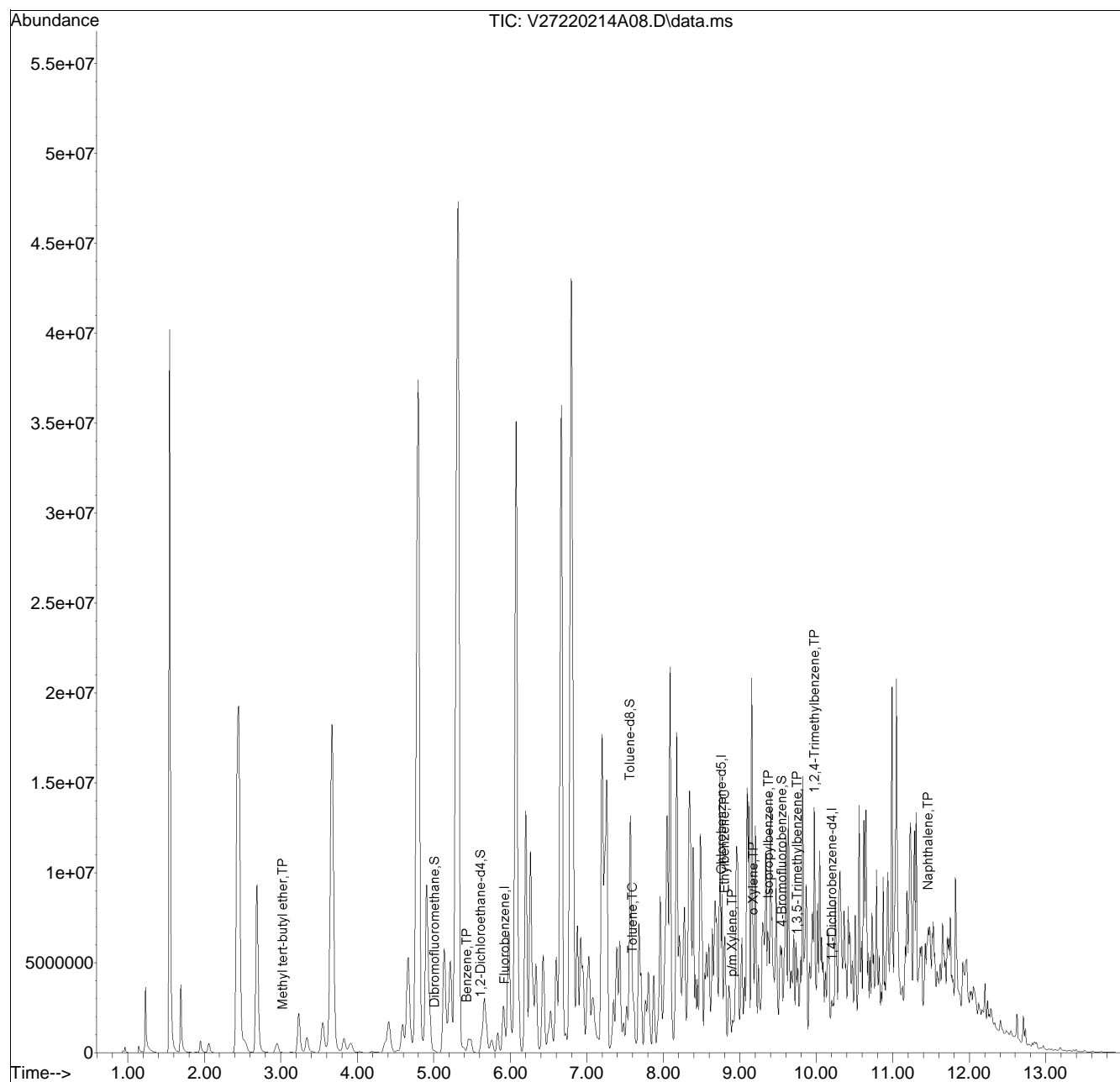
Additional notes and signatures at the bottom of the page.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
 Data File : V27220214A08.D
 Acq On : 14 Feb 2022 10:02 am
 Operator : VOA127:AJK
 Sample : 12206339-01,31H,5.11,5,0.100,,a
 Misc : WG1604734,ICAL18638
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 14 11:46:43 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•

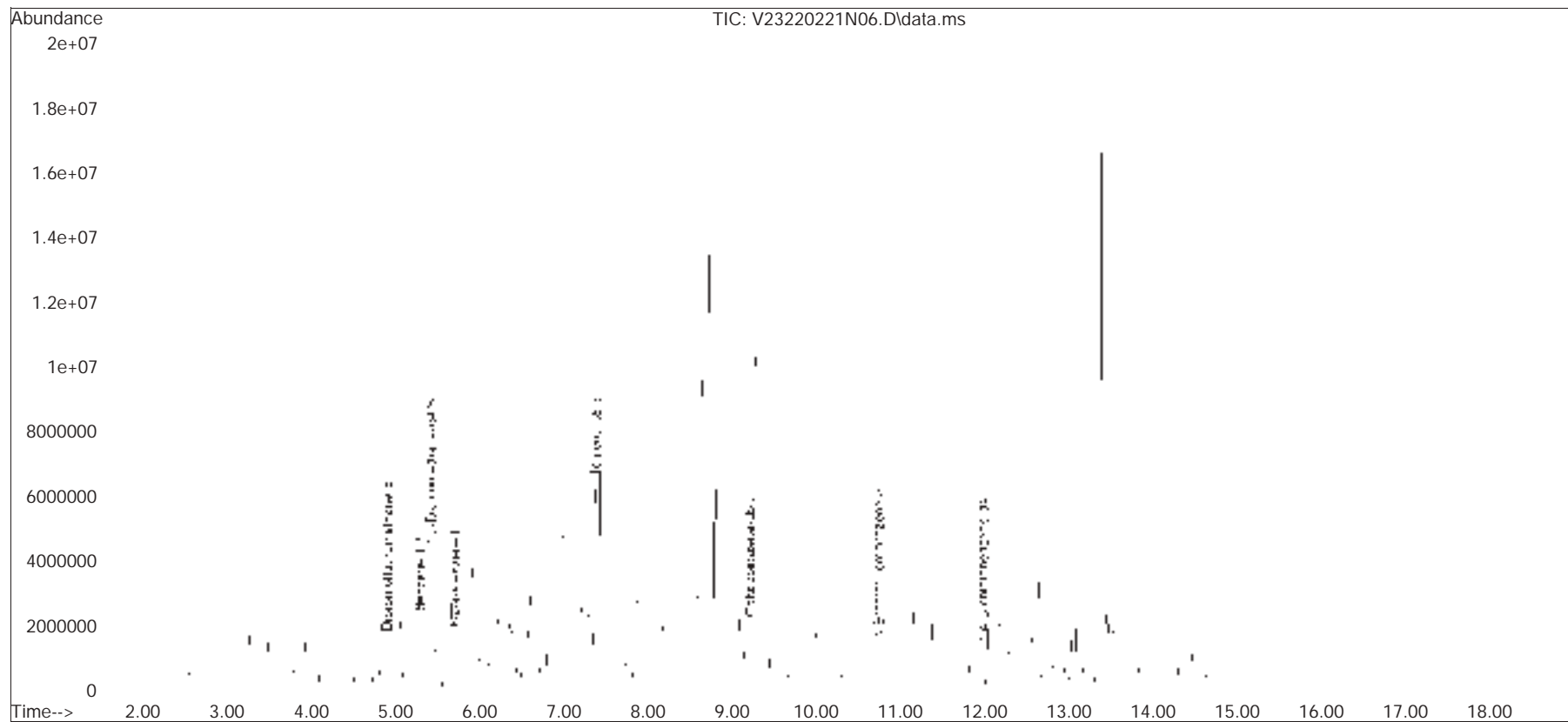


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220221N\
Data File : V23220221N06.D
Acq On : 21 Feb 2022 08:32 pm
Operator : VOA123:AJK
Sample : 12206339-07,31,6.17,5,,b
Misc : WG1607838,ICAL18401
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 22 13:01:12 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220221N\V23220221N01.D•

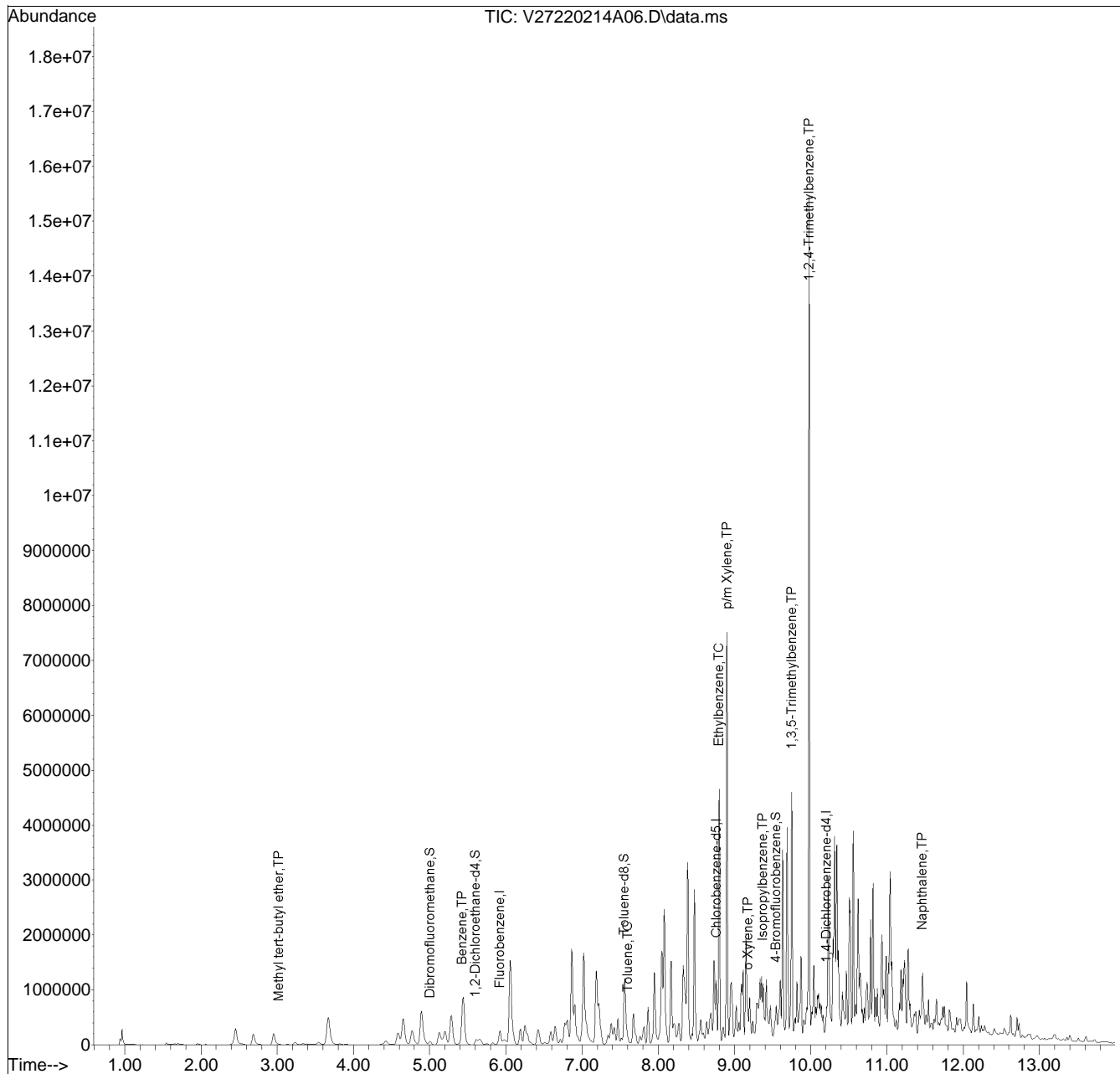


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
Data File : V27220214A06.D
Acq On : 14 Feb 2022 09:21 am
Operator : VOA127:AJK
Sample : 12206339-09D2,31H,7.02,5,0.050,,a
Misc : WG1604734,ICAL18638
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 11:45:49 2022
Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•





ANALYTICAL REPORT

Lab Number:	L2206606
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	03/29/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206606-01	PB-29-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 09:35	02/08/22
L2206606-02	PB-29-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 09:45	02/08/22
L2206606-03	PB-29-15R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 10:35	02/08/22
L2206606-04	PB-29-15R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 10:45	02/08/22
L2206606-05	PB-29-15R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 10:55	02/08/22
L2206606-06	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:10	02/08/22
L2206606-07	PB-29-28-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 11:15	02/08/22
L2206606-08	PB-29-28-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 11:25	02/08/22
L2206606-09	PB-29-26R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:30	02/08/22
L2206606-10	PB-27-01R-3.5-4.0	SOIL	PHILADELPHIA, PA	02/08/22 12:25	02/08/22
L2206606-11	PB-27-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 12:30	02/08/22
L2206606-12	PB-27-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:05	02/08/22
L2206606-13	PB-27-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:10	02/08/22
L2206606-14	PB-27-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:15	02/08/22
L2206606-15	PB-27-18-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:25	02/08/22
L2206606-16	PB-27-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:30	02/08/22
L2206606-17	PB-27-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:35	02/08/22
L2206606-18	PB-27-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 12:20	02/08/22

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2206606-14, -15, and -16.

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206606-14.

February 28, 2022: This preliminary report includes the results of the Volatile Organics analysis performed on L2206606-08 and the Total Lead analysis performed on L2206606-15 and -16.

Report Revision

February 22, 2022: At the client's request, the Volatile Organics reporting list has been amended on L2206606-06 and -07.

Report Submission

February 15, 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

L2206606-12: Sample containers for Volatile Organics were received for the "PB-27-02R-0.0-0.5" sample, but were not listed on the chain of custody. At the client's request, the analysis was not performed.

Volatile Organics

L2206606-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (141%) and 4-bromofluorobenzene (288%); 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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Case Narrative (continued)

L2206606-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (57%) and dibromofluoromethane (61%) due to interference with the Internal Standard.

L2206606-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (136%) and 4-bromofluorobenzene (285%); 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.

L2206606-08 and -14D: The sample was analyzed with the method required holding time exceeded.

L2206606-13D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (204%); 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.

L2206606-13D2: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (64%) due to interference with the Internal Standard.

L2206606-14D: 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.

L2206606-15: 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.

L2206606-15: The sample was received in the appropriate containers (vials) for the Volatile Organics by EPA Method 5035/8260 Low Level analysis; however, analysis yielded no reportable data. With the client's authorization, a sample aliquot was taken from an unpreserved container (inappropriate plastic) and preserved appropriately.

L2206606-16: 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.

L2206606-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); 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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Case Narrative (continued)

Total Metals

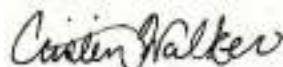
L2206606-03: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

The WG1607927-3 MS recovery for lead (15%), performed on L2206606-15, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1607927-6 serial dilution analysis, associated with L2206606-15, had a %D above the acceptance criteria for lead (43%).

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: 03/29/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-01
 Client ID: PB-29-08R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 09:35
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 08:48
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Ethylbenzene	0.21		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.037		mg/kg	0.0025	0.00069	1
o-Xylene	0.0085		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.046		mg/kg	0.0012	0.00036	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0071		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	57	Q	70-130
Toluene-d8	141	Q	70-130
4-Bromofluorobenzene	288	Q	70-130
Dibromofluoromethane	61	Q	70-130



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-06
 Client ID: PB-29-28-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:10
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 16:28
 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	0.0027		mg/kg	0.00073	0.00024	1
Toluene	0.0015		mg/kg	0.0015	0.00080	1
Naphthalene	ND		mg/kg	0.0059	0.00096	1

Benzene	0.0027		mg/kg	0.00073	0.00024	1
Toluene	0.0015		mg/kg	0.0015	0.00080	1
Naphthalene	ND		mg/kg	0.0059	0.00096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-07
 Client ID: PB-29-28-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:15
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 09:41
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	7.0		mg/kg	0.035	0.012	1
Toluene	8.1		mg/kg	0.070	0.038	1
Naphthalene	2.3		mg/kg	0.28	0.046	1

Benzene	7.0		mg/kg	0.035	0.012	1
Toluene	8.1		mg/kg	0.070	0.038	1
Naphthalene	2.3		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	136	Q	70-130
4-Bromofluorobenzene	285	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-08
 Client ID: PB-29-28-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:25
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 01:18
 Analyst: KDU
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	6.0		mg/kg	0.032	0.011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-13 D2
 Client ID: PB-27-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 10:31
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.5		mg/kg	0.59	0.059	5
Benzene	19.		mg/kg	0.15	0.049	5
Toluene	150	E	mg/kg	0.29	0.16	5
Ethylbenzene	94.	E	mg/kg	0.29	0.041	5
p/m-Xylene	310	E	mg/kg	0.59	0.16	5
o-Xylene	100		mg/kg	0.29	0.085	5
1,3,5-Trimethylbenzene	57.		mg/kg	0.59	0.056	5
1,2,4-Trimethylbenzene	160	E	mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	204	Q	70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-13 D
 Client ID: PB-27-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 17:18
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Toluene	170		mg/kg	5.9	3.2	100
Ethylbenzene	100		mg/kg	5.9	0.83	100
p/m-Xylene	360		mg/kg	12	3.3	100
Xylenes, Total	460		mg/kg	0.29	0.085	100
1,2,4-Trimethylbenzene	180		mg/kg	12	2.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	88		70-130



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-14 D
 Client ID: PB-27-02R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:15
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/23/22 21:38
 Analyst: AJK
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.38		mg/kg	0.27	0.027	2
Benzene	6.6		mg/kg	0.068	0.023	2
Toluene	12.		mg/kg	0.14	0.074	2
Ethylbenzene	31.		mg/kg	0.14	0.019	2

Methyl tert butyl ether	0.38		mg/kg	0.27	0.027	2
Benzene	6.6		mg/kg	0.068	0.023	2
Toluene	12.		mg/kg	0.14	0.074	2
Ethylbenzene	31.		mg/kg	0.14	0.019	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	145	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15
 Client ID: PB-27-18-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 17:43
 Analyst: AJK
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.025	J	mg/kg	0.10	0.010	1
Benzene	0.034		mg/kg	0.026	0.0085	1
Ethylbenzene	0.0078	J	mg/kg	0.051	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15
 Client ID: PB-27-18-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 13:51
 Analyst: KJD
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00087	J	mg/kg	0.0022	0.00022	1
Benzene	0.00085		mg/kg	0.00054	0.00018	1
Ethylbenzene	0.0013		mg/kg	0.0011	0.00015	1
1,3,5-Trimethylbenzene	0.00058	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0011	J	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	107		70-130
Dibromofluoromethane	116		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16
 Client ID: PB-27-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:30
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 10:06
 Analyst: AJK
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.017	J	mg/kg	0.15	0.015	1
Benzene	0.016	J	mg/kg	0.038	0.013	1
Ethylbenzene	0.026	J	mg/kg	0.077	0.011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.033	J	mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	87		70-130



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 02/09/22 11:45
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1603548-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,15 Batch: WG1603551-5					
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
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
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	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:16
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,13,16 Batch: WG1605129-5					
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
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
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	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 08:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1605187-5					
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
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	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15 Batch: WG1605212-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1608829-10					
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

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 02/23/22 20:19
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1603548-3 WG1603548-4								
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
Naphthalene	90		99		70-130	10		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,15 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,13,16 Batch: WG1605129-3 WG1605129-4								
Methyl tert butyl ether	89		96		66-130	8		30
Benzene	92		96		70-130	4		30
Toluene	100		102		70-130	2		30
Ethylbenzene	102		103		70-130	1		30
p/m-Xylene	99		100		70-130	1		30
o-Xylene	97		99		70-130	2		30
1,3,5-Trimethylbenzene	104		105		70-130	1		30
1,2,4-Trimethylbenzene	102		104		70-130	2		30
Naphthalene	95		101		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		113		70-130
Toluene-d8	107		105		70-130
4-Bromofluorobenzene	114		109		70-130
Dibromofluoromethane	93		94		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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: WG1605187-3 WG1605187-4								
Ethylbenzene	96		91		70-130	5		30
p/m-Xylene	99		94		70-130	5		30
o-Xylene	102		97		70-130	5		30
1,3,5-Trimethylbenzene	108		100		70-130	8		30
1,2,4-Trimethylbenzene	109		101		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		82		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	87		89		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1608829-8 WG1608829-9								
Methyl tert butyl ether	84		84		66-130	0		30
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
Ethylbenzene	98		100		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130



SEMIVOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-01
 Client ID: PB-29-08R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 09:35
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 13:52
 Analyst: WR
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-09
 Client ID: PB-29-26R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:30
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 14:15
 Analyst: WR
 Percent Solids: 92%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.026	J	mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	107		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-10
 Client ID: PB-27-01R-3.5-4.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:25
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 14:37
 Analyst: WR
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.63		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	80		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-12
 Client ID: PB-27-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:05
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 15:00
 Analyst: WR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.036	J	mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	124	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	67		18-120



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-13
 Client ID: PB-27-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 15:22
 Analyst: WR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.80		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	69		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15
 Client ID: PB-27-18-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 15:45
 Analyst: WR
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	58		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	35		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16
 Client ID: PB-27-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:30
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 16:07
 Analyst: WR
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	37		30-120
4-Terphenyl-d14	36		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-18
 Client ID: PB-27-01R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:20
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 16:30
 Analyst: WR
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	42		23-120
2-Fluorobiphenyl	27	Q	30-120
4-Terphenyl-d14	24		18-120



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 11:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120



METALS



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-03

Date Collected: 02/08/22 10:35

Client ID: PB-29-15R-0.0-0.5

Date Received: 02/08/22

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	4.57	J	mg/kg	11.3	0.604	5	02/09/22 22:45	02/13/22 18:41	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-04

Date Collected: 02/08/22 10:45

Client ID: PB-29-15R-6.0-6.5

Date Received: 02/08/22

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	4.39		mg/kg	2.37	0.127	1	02/09/22 22:45	02/13/22 14:48	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-09

Date Collected: 02/08/22 11:30

Client ID: PB-29-26R-0.0-0.5

Date Received: 02/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	274		mg/kg	2.06	0.111	1	02/09/22 22:45	02/13/22 14:52	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-10

Date Collected: 02/08/22 12:25

Client ID: PB-27-01R-3.5-4.0

Date Received: 02/08/22

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	16.9		mg/kg	2.32	0.124	1	02/09/22 22:45	02/13/22 15:38	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-12

Date Collected: 02/08/22 13:05

Client ID: PB-27-02R-0.0-0.5

Date Received: 02/08/22

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	1210		mg/kg	2.38	0.127	1	02/10/22 22:22	02/13/22 12:48	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-13

Date Collected: 02/08/22 13:10

Client ID: PB-27-02R-6.0-6.5

Date Received: 02/08/22

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	9.00		mg/kg	2.35	0.126	1	02/09/22 22:45	02/13/22 15:42	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15

Date Collected: 02/08/22 13:25

Client ID: PB-27-18-0.0-0.5

Date Received: 02/08/22

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	330		mg/kg	2.14	0.115	1	02/23/22 07:45	02/28/22 13:47	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16

Date Collected: 02/08/22 13:30

Client ID: PB-27-18-6.0-6.5

Date Received: 02/08/22

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	32.6		mg/kg	2.40	0.128	1	02/23/22 07:45	02/28/22 13:33	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206606

Project Number: 200.00135.005.03

Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-18

Date Collected: 02/08/22 12:20

Client ID: PB-27-01R-0.0-0.5

Date Received: 02/08/22

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	273		mg/kg	2.30	0.123	1	02/09/22 22:45	02/13/22 15:47	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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): 03-04,09-10,13,18 Batch: WG1603164-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

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): 12 Batch: WG1603583-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/10/22 22:22	02/13/22 11:49	1,6010D	DL

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: WG1607927-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/23/22 07:45	02/28/22 13:24	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,09-10,13,18 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 12 Batch: WG1603583-2 SRM Lot Number: D113-540								
Lead, Total	108		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 15-16 Batch: WG1607927-2 SRM Lot Number: D113-540								
Lead, Total	97		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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): 03-04,09-10,13,18 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	73	Q	41.5	65	Q	75-125	9		20
Total Metals - Mansfield Lab Associated sample(s): 12 QC Batch ID: WG1603583-3 WG1603583-4 QC Sample: L2206791-01 Client ID: MS Sample												
Lead, Total	18.7	66.7	69.3	76		74.5	82		75-125	7		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-3 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5												
Lead, Total	330	45.7	337	15	Q	-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-4 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	324	mg/kg	2		20

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2206606

Report Date: 03/29/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-6 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	472	mg/kg	43	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-01
Client ID: PB-29-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 09:35
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-03
Client ID: PB-29-15R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 10:35
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-04
Client ID: PB-29-15R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 10:45
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-06
Client ID: PB-29-28-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:10
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-07
Client ID: PB-29-28-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:15
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-08
Client ID: PB-29-28-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:25
Date Received: 02/08/22
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	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206606**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**SAMPLE RESULTS**

Lab ID: L2206606-09

Date Collected: 02/08/22 11:30

Client ID: PB-29-26R-0.0-0.5

Date Received: 02/08/22

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	92.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-10
Client ID: PB-27-01R-3.5-4.0
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:25
Date Received: 02/08/22
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	81.4		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-12
 Client ID: PB-27-02R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:05
 Date Received: 02/08/22
 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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-13
 Client ID: PB-27-02R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
 Date Received: 02/08/22
 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	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-14
Client ID: PB-27-02R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:15
Date Received: 02/08/22
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	87.8		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15
Client ID: PB-27-18-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
Date Received: 02/08/22
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	89.1		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16
Client ID: PB-27-18-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:30
Date Received: 02/08/22
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	79.6		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-18
Client ID: PB-27-01R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:20
Date Received: 02/08/22
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	-	02/09/22 07:58	121,2540G	RI



Lab Duplicate Analysis *Batch Quality Control*

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09-10,12-13,15-16,18 QC Batch ID: WG1602922-1 QC Sample: L2206606-01 Client ID: PB-29-08R-6.0-6.5						
Solids, Total	78.8	78.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 08,14 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: PB-29-28-14.0-14.5						
Solids, Total	81.0	81.0	%	0		20



Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206606**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-01A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2206606-01B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-01E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2206606-02A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2206606-02B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-02E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		HOLD-8270(14)
L2206606-03A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-03B	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-04B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-05A	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-METAL(180)
L2206606-05B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-06A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-06B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-07A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-07B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206606**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-07C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-07D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-08A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-08B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-09A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-09B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-10A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-10B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-11A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-CONTINGENCY(14)
L2206606-11B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-12A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-12B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-12E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-13A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-13B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-13F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PA-PAH(14)
L2206606-14A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-14B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-14E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-METAL(180)

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206606**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-14F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-15A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206606-15B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-15E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-16A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-16B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-16E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-17A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-17B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-17E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-18A	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-18B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206606**Project Number:** 200.00135.005.03**Report Date:** 03/29/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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.

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
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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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

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-Terpeneol

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-Terpeneol; 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: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
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 project-specific analyte list per attached
Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: PES Refinery - Delineation
AST Closure - SITE INVESTIGATION

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: 5-DAY Time: _____

Date Rec'd in Lab: 1 2/9/22

ALPHA Job #: L2206606

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: PADEP Storage Tank Sampling
Criteria: _____

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TRIMB, 1,3,5-TRIMB, XYLENES, ETHYLBENZENE, MTBE												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												
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<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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												

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
		Date	Time		
06606-01	PB-29-08R-6.0-6.5	2/8	0935	S	TS
02	PB-29-08R-14.0-14.5		0945		
03	PB-29-15R-0.0-0.5		1035		
04	PB-29-15R-6.0-6.5		1045		
05	PB-29-15R-14.0-14.5		1055		
06	PB-29-28-0.0-0.5		1110		
07	PB-29-28-6.0-6.5		1115		
08	PB-29-28-14.0-14.5		1125		
09	PB-29-26R-0.0-0.5		1130		
010	PB-29-01R-0.0-0.5				

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/8 1536	<i>[Signature]</i>	2/8 1536
<i>[Signature]</i>	2/8 1800	<i>[Signature]</i>	2/8 1800
<i>[Signature]</i>	2/8 2030	<i>[Signature]</i>	2/8 2030

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 2

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3286

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 per attached
Run NAP via 8270
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: PES Refinery Delineation TS
AST CLOSURE - SITE INVESTIGATION

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: 5-DAY Time: _____

Date Rec'd in Lab: 1 2/9/22

ALPHA Job #: L2206606

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: PADEP Storage Tank Sampling
Criteria: _____

ANALYSIS

Lead	Benzene	Toluene	Benz(a)pyrene	Benz(a)fluoranthene	Naphthalene	1,2,4-TMB, 1,3,5-TMB, XYLENES, MIBK, ETHYLBENZENE	1,2,4-TMB, 1,3,5-TMB, ETHYLBENZENE	Sample Specific Comments	TOTAL # BOTTLES
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		5
<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	5
<input checked="" 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
06606-H10	PB-27-012-3.5-1.0	2/8	1225	S	TS
2/9/22	PB-27-012-14.0-14.5		1230	S	
1312	PB-27-022-0.0-0.5		1305	S	
1413	PB-27-022-6.0-6.5		1310	S	
1514	PB-27-022-14.0-14.5		1315	S	
1615	PB-27-18-0.0-0.5		1325	S	
1716	PB-27-18-6.0-6.5		1330	S	
1717	PB-27-18-14.0-14.5		1335	S	
18	PB-27-012-0.0-0.5		1210	S	

Container Type	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-

Relinquished By	Date/Time	Received By	Date/Time
[Signature]	2/8 1536	[Signature]	2/8 1536
[Signature]	2/8 1800	[Signature]	2/8 1800
[Signature]	2-8-2036	[Signature]	2/8 2036
[Signature]	2/5/22	[Signature]	2/5/22 2030

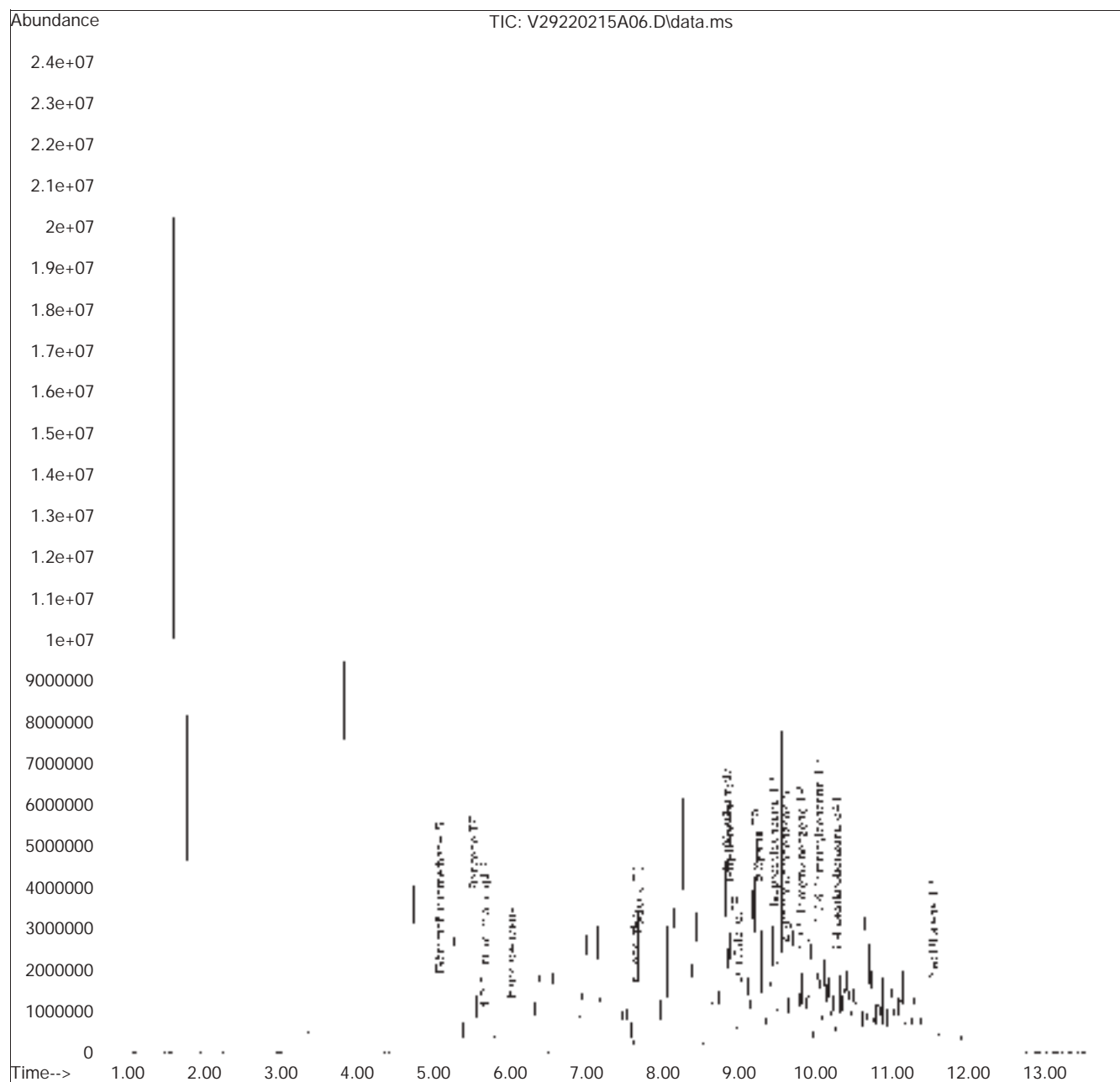
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220215A\
Data File : V29220215A06.D
Acq On : 15 Feb 2022 08:48 am
Operator : VOA129:NLK
Sample : L2206606-01,31,5.15,5,,C,R2F
Misc : WG1605187,ICAL18564
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 15 12:22:50 2022
Quant Method : I:\VOLATILES\VOA129\2022\220215A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V29220215A02.D•

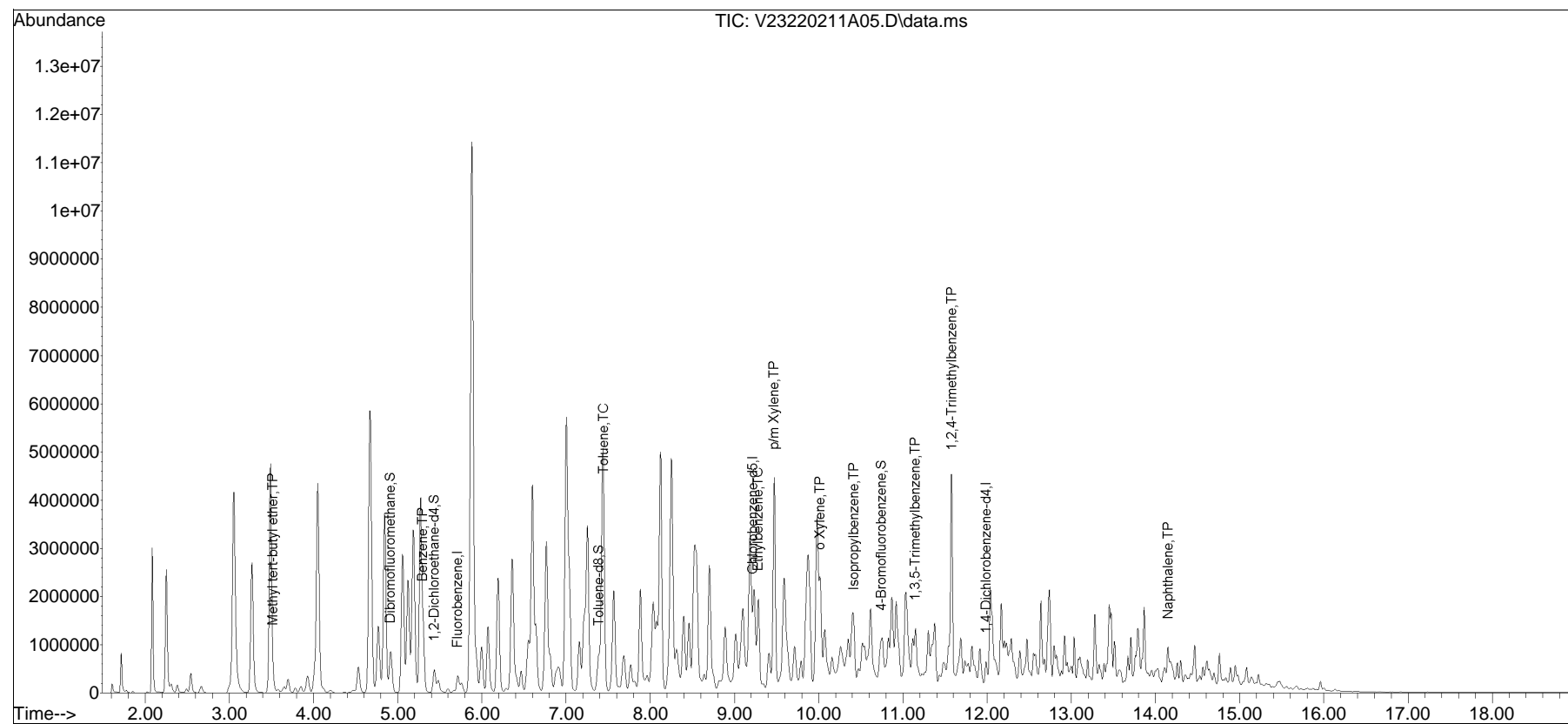


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
 Data File : V23220211A05.D
 Acq On : 11 Feb 2022 09:41 am
 Operator : VOA123:AJK
 Sample : L2206606-07,31H,5.34,5,0.100,,A,R2F
 Misc : WG1605129,ICAL18401
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 14 14:55:28 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Oct 21 08:44:24 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•

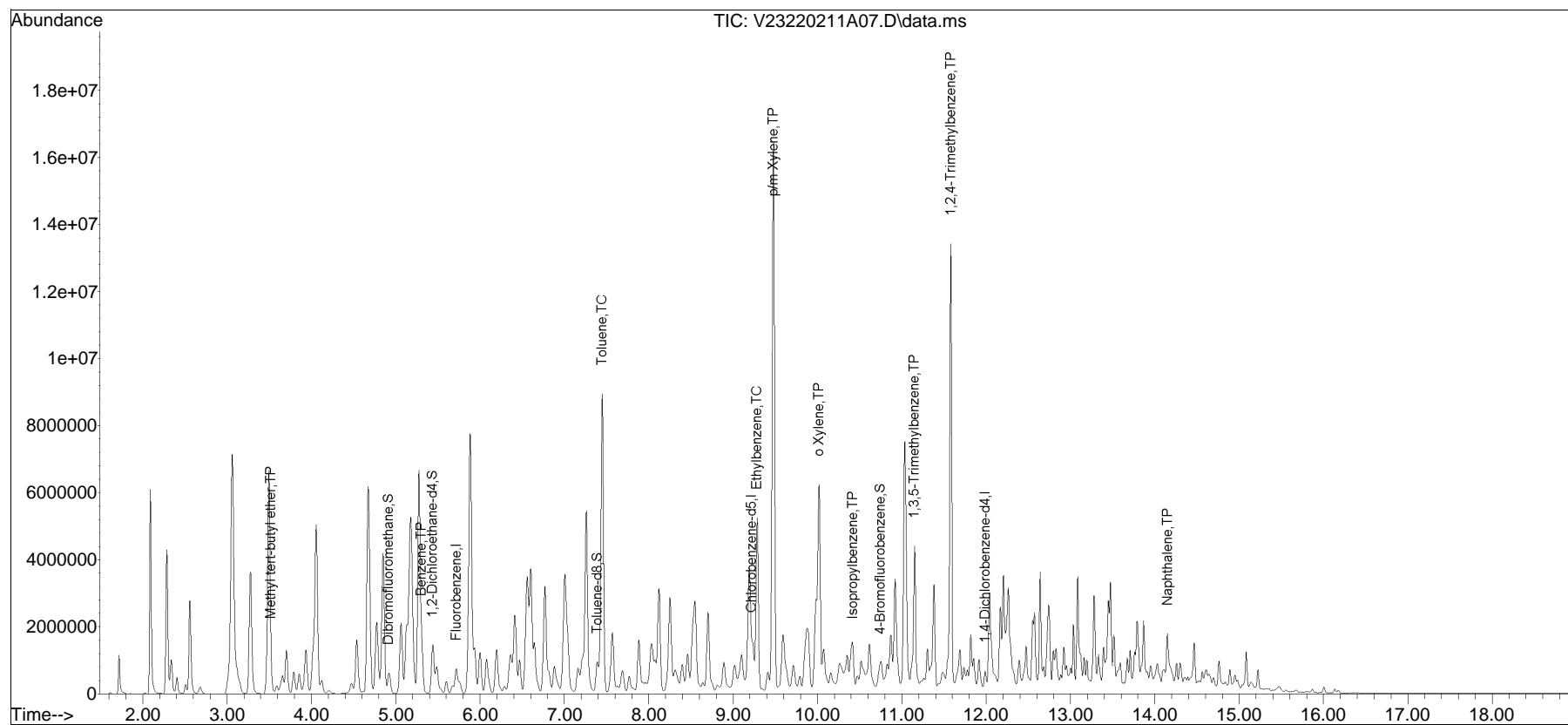


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A07.D
Acq On : 11 Feb 2022 10:31 am
Operator : VOA123:AJK
Sample : L2206606-13D2,31H,6.36,5,0.020,,A,R2F
Misc : WG1605129,ICAL18401
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 14 15:00:21 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•

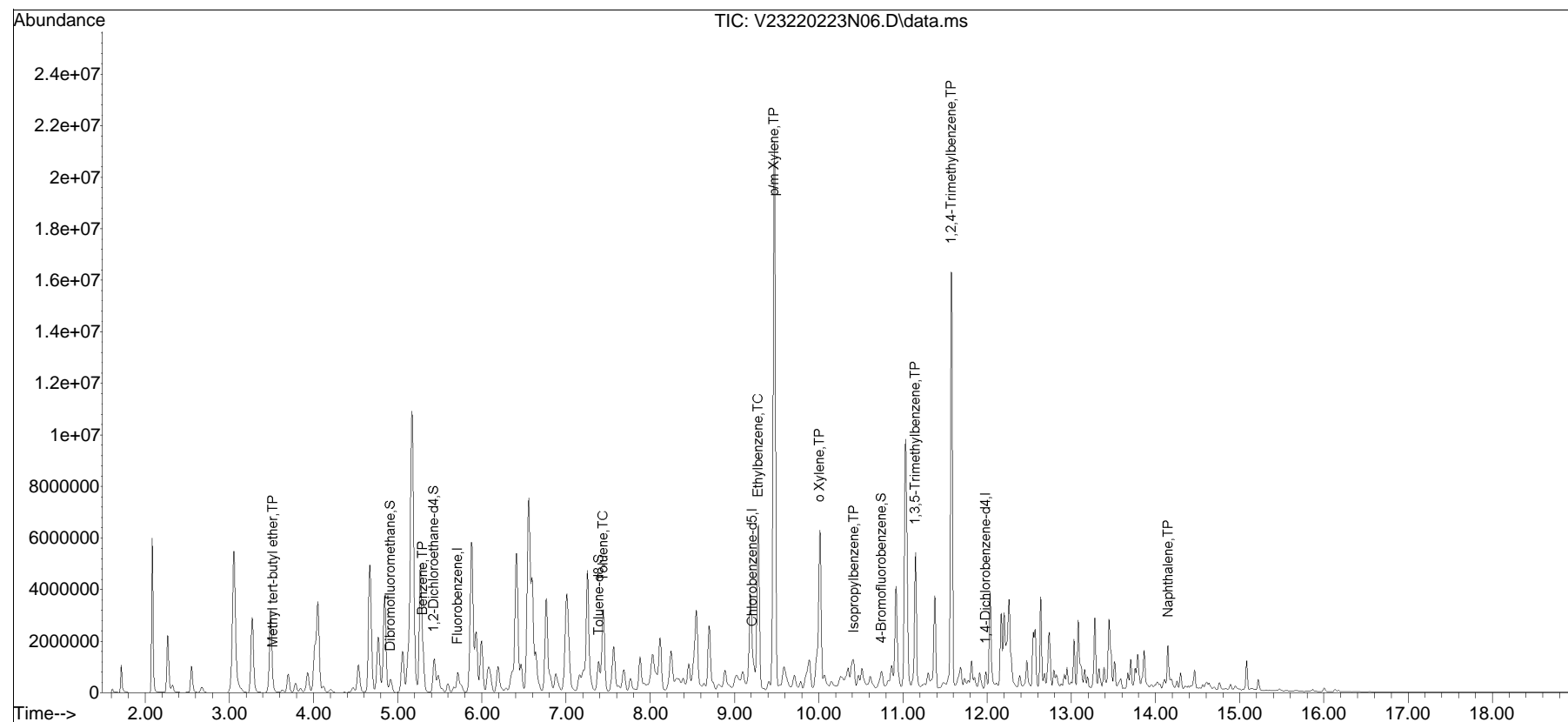


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220223N\
 Data File : V23220223N06.D
 Acq On : 23 Feb 2022 09:38 pm
 Operator : VOA123:AJK
 Sample : 12206606-14D,31H,4.65,5,0.050,,a,r2f
 Misc : WG1608829,ICAL18401
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 13:16:20 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220223N\V123_211020N_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Oct 21 08:44:24 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list23N\V23220223N01.D•

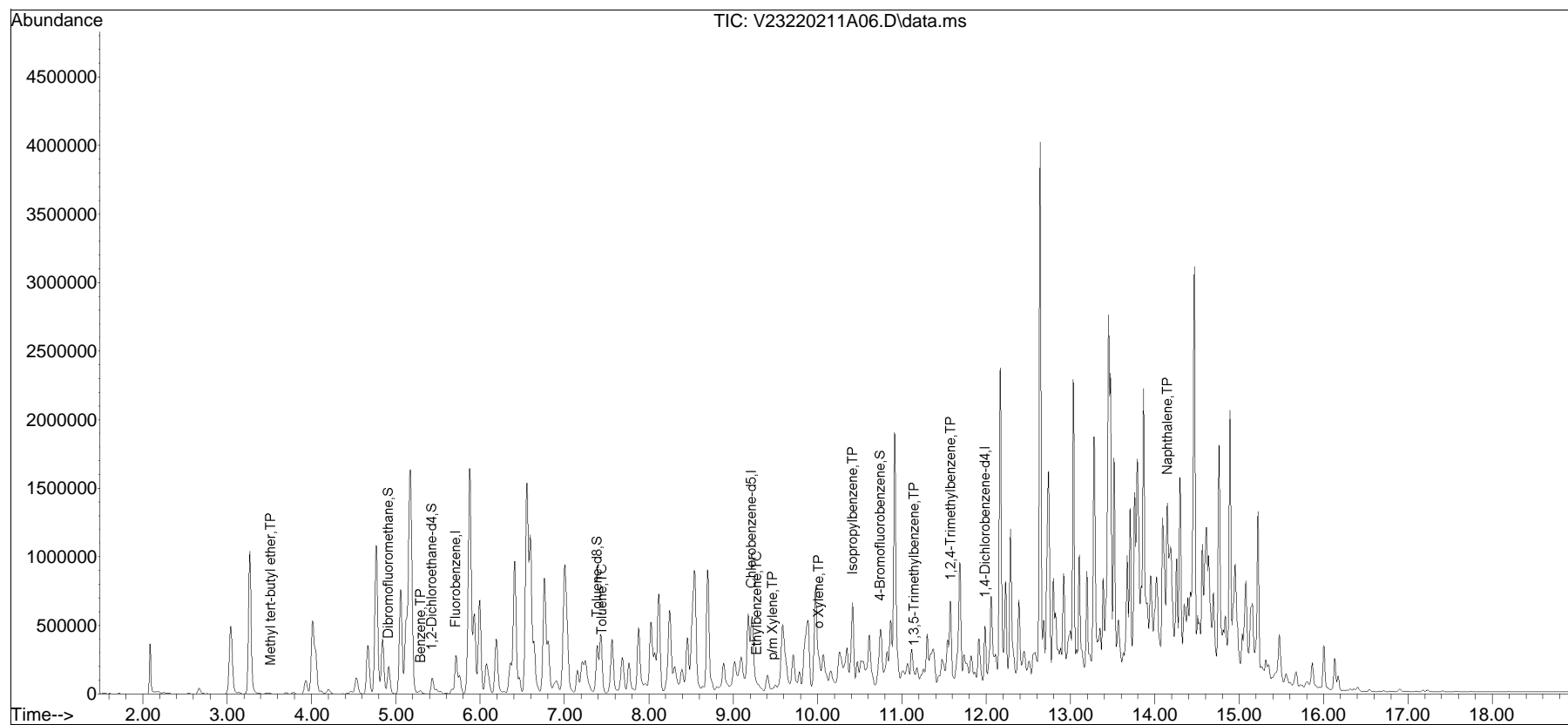


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A06.D
Acq On : 11 Feb 2022 10:06 am
Operator : VOA123:AJK
Sample : L2206606-16,31H,4.92,5,0.100,,A,R2F
Misc : WG1605129,ICAL18401
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 14:59:34 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•





ANALYTICAL REPORT

Lab Number:	L2206607
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/15/22

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-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206607-01	PB-28-05-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:40	02/08/22
L2206607-02	PB-28-08-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:50	02/08/22
L2206607-03	FB-220208-1	WATER	PHILADELPHIA, PA	02/08/22 12:00	02/08/22
L2206607-04	FB-220208-2	WATER	PHILADELPHIA, PA	02/08/22 14:00	02/08/22
L2206607-05	TB-220208	WATER	PHILADELPHIA, PA	02/08/22 00:00	02/08/22

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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

L2206607-03, -04 and -05: The analysis of Microextractables was requested on the Chain of Custody; however, sample containers were not received. This was verified by the client.

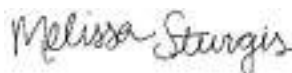
Volatile Organics

L2206607-01D: 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.

L2206607-02: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (68%) and 4-bromofluorobenzene (132%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) 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.

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: 02/15/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01 D
 Client ID: PB-28-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:40
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 15:13
 Analyst: AJK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.23	J	mg/kg	0.62	0.063	5
Benzene	3.2		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.080	5
Toluene	2.1		mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.091	5
Ethylbenzene	15.		mg/kg	0.31	0.044	5
p/m-Xylene	32.		mg/kg	0.62	0.17	5
o-Xylene	5.0		mg/kg	0.31	0.091	5
Xylenes, Total	37.		mg/kg	0.31	0.091	5
Isopropylbenzene	3.4		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	19.		mg/kg	0.62	0.060	5
1,2,4-Trimethylbenzene	46.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02
 Client ID: PB-28-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:50
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 15:38
 Analyst: AJK
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.49		mg/kg	0.13	0.013	1
Benzene	1.3		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.54		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.45		mg/kg	0.067	0.0094	1
p/m-Xylene	1.6		mg/kg	0.13	0.037	1
o-Xylene	0.70		mg/kg	0.067	0.019	1
Xylenes, Total	2.3		mg/kg	0.067	0.019	1
Isopropylbenzene	0.024	J	mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.25		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.77		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02
 Client ID: PB-28-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:50
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 01:08
 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	0.35	E	mg/kg	0.0023	0.00023	1
Benzene	0.92	E	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	0.0034		mg/kg	0.0012	0.00030	1
Toluene	0.45	E	mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.34		mg/kg	0.0012	0.00016	1
p/m-Xylene	1.2	E	mg/kg	0.0023	0.00065	1
o-Xylene	0.56		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.020		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.18		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	68	Q	70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	132	Q	70-130
Dibromofluoromethane	72		70-130



Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03
 Client ID: FB-220208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:00
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 11:12
 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	110		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-04
 Client ID: FB-220208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 14:00
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 11:33
 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	109		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-05
 Client ID: TB-220208
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 00:00
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/09/22 11:53
 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	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1603551-5					
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	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130



Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/09/22 08:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-05 Batch: WG1603560-5					
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	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1605096-5					
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	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
1,2-Dichloroethane	92		103		70-130	11		30
Toluene	85		93		70-130	9		30
1,2-Dibromoethane	87		97		70-130	11		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
Isopropylbenzene	86		95		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-05 Batch: WG1603560-3 WG1603560-4								
Methyl tert butyl ether	94		98		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	105		110		70-130	5		20
o-Xylene	105		105		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	99		100		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	102		100		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	100		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1605096-3 WG1605096-4								
Methyl tert butyl ether	79		82		66-130	4		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	78		80		70-130	3		30
Toluene	99		100		70-130	1		30
1,2-Dibromoethane	94		100		70-130	6		30
Ethylbenzene	96		98		70-130	2		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	107		108		70-130	1		30
1,3,5-Trimethylbenzene	107		109		70-130	2		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	79		80		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	104		106		70-130
Dibromofluoromethane	88		88		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01
 Client ID: PB-28-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:40
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/13/22 14:02
 Analyst: SLR
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.4	E	mg/kg	0.21	0.025	1
Fluorene	0.26		mg/kg	0.21	0.020	1
Phenanthrene	0.63		mg/kg	0.12	0.025	1
Anthracene	0.11	J	mg/kg	0.12	0.040	1
Pyrene	0.23		mg/kg	0.12	0.021	1
Benzo(a)anthracene	0.13		mg/kg	0.12	0.023	1
Chrysene	0.13		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	0.16		mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.12	J	mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.087	J	mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	78		18-120



Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01 D
 Client ID: PB-28-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:40
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 13:42
 Analyst: WR
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.		mg/kg	1.0	0.13	5

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02
 Client ID: PB-28-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:50
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/13/22 18:26
 Analyst: SLR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12	J	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	54		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03
 Client ID: FB-220208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:00
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/13/22 12:26
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	86		41-149

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-04
 Client ID: FB-220208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 14:00
 Date Received: 02/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/13/22 12:42
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	85		41-149

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/13/22 18:02
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1604253-1					
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	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 11:37
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03-04 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03-04 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149



METALS



Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01

Date Collected: 02/08/22 13:40

Client ID: PB-28-05-SS01

Date Received: 02/08/22

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	461		mg/kg	12.3	0.661	5	02/09/22 22:45	02/13/22 18:46	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02

Date Collected: 02/08/22 13:50

Client ID: PB-28-08-SS01

Date Received: 02/08/22

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	8.67		mg/kg	2.39	0.128	1	02/09/22 22:45	02/13/22 16:37	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03

Date Collected: 02/08/22 12:00

Client ID: FB-220208-1

Date Received: 02/08/22

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	02/09/22 16:00	02/10/22 12:21	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-04

Date Collected: 02/08/22 14:00

Client ID: FB-220208-2

Date Received: 02/08/22

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	02/09/22 16:00	02/10/22 12:26	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/15/22

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): 03-04 Batch: WG1603140-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:11	1,6020B	SV

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): 01-02 Batch: WG1603164-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 Batch: WG1603140-2								
Lead, Total	106		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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): 03-04 QC Batch ID: WG1603140-3 QC Sample: L2206637-01 Client ID: MS Sample												
Lead, Total	1.260	530	568.2	107		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	73	Q	41.5	65	Q	75-125	9		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2206607

Report Date: 02/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1603140-4 QC Sample: L2206637-01 Client ID: DUP Sample						
Lead, Total	1.260	1.326	ug/l	5		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01
 Client ID: PB-28-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:40
 Date Received: 02/08/22
 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	79.0		%	0.100	NA	1	-	02/09/22 08:13	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02
Client ID: PB-28-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:50
Date Received: 02/08/22
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	-	02/09/22 08:13	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2206607

Report Date: 02/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1602926-1 QC Sample: L2206608-01 Client ID: DUP Sample						
Solids, Total	91.4	90.8	%	1		20

Project Name: PHILADELPHIA REFINERY-SOIL CHA**Lab Number:** L2206607**Project Number:** 200.00135.005.03**Report Date:** 02/15/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-01A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206607-01B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 06:40	PA-8260HLW(14)
L2206607-01C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260HLW(14)
L2206607-01D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-01F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-02A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206607-02B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-02F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-03A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-03E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-03F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-04A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-04E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Project Number: 200.00135.005.03

Serial_No:02152215:12

Lab Number: L2206607

Report Date: 02/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-04F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-05A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-05B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)



Project Name: PHILADELPHIA REFINERY-SOIL CHA**Lab Number:** L2206607**Project Number:** 200.00135.005.03**Report Date:** 02/15/22

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-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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.

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-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

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 1 OF 1

Project Information

Project Name: Philadelphia Refinery -
SOIL CHARACTERIZATION

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)

S-DAY

Due Date: Time:

Date Rec'd in Lab: **2/9/22**

ALPHA Job #: **2206607**

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

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"/>
<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 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)

TOTAL # BOTTLES

Sample Specific Comments

Westborough, MA Mansfield, MA
TEL: 508-898-8220 TEL: 508-822-9300
FAX: 508-858-9193 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 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@terrphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

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
060607-01	PB-28-05-5501	2/8	1340	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"/>		4
02	PB-28-08-5501		1350	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"/>		6
03	FB-220203-1		1200	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"/>		6
04	FB-220208-2		1400	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"/>		6
05	TB-220208		-	W		<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:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/8 1636	<i>[Signature]</i>	2/8 1536
<i>[Signature]</i>	2/8 1800	<i>[Signature]</i>	2/8 1800
<i>[Signature]</i>	2-8 2030	<i>[Signature]</i>	2/5/22 2030
<i>[Signature]</i>	2/8/22 0155	<i>[Signature]</i>	2/8/22 2355
			2/9/22 0155

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.

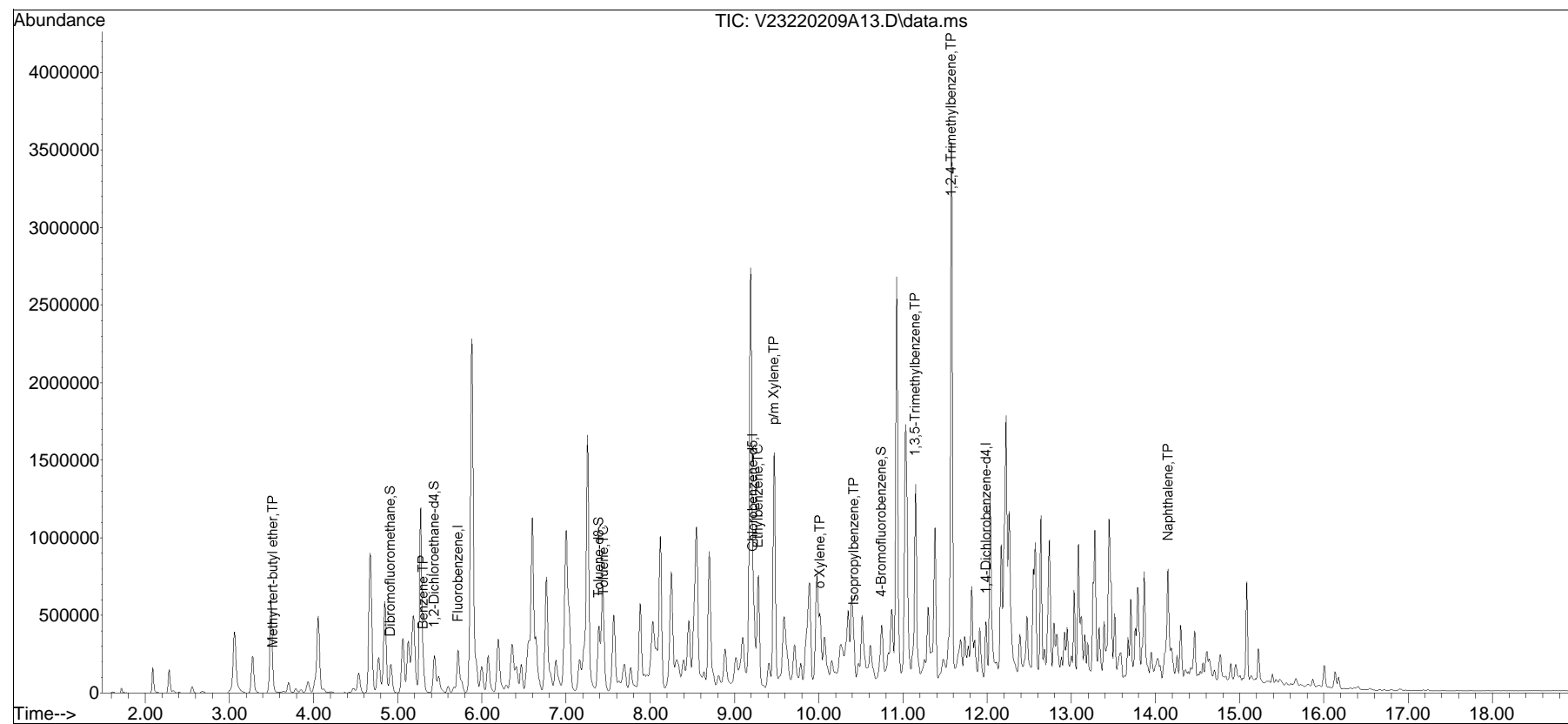
FORM NO. 01-01(1-14)
(See 1-1 JAN 12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220209A\
 Data File : V23220209A13.D
 Acq On : 09 Feb 2022 03:13 pm
 Operator : VOA123:AJK
 Sample : L2206607-01D,31H,6.44,5,0.020,,A,R2F
 Misc : WG1603551,ICAL18401
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 09 19:35:18 2022
 Quant Method : I:\VOLATILES\VOA123\2022\220209A\V123_211020N_8260D.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Thu Oct 21 08:44:24 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V23220209A01.D•

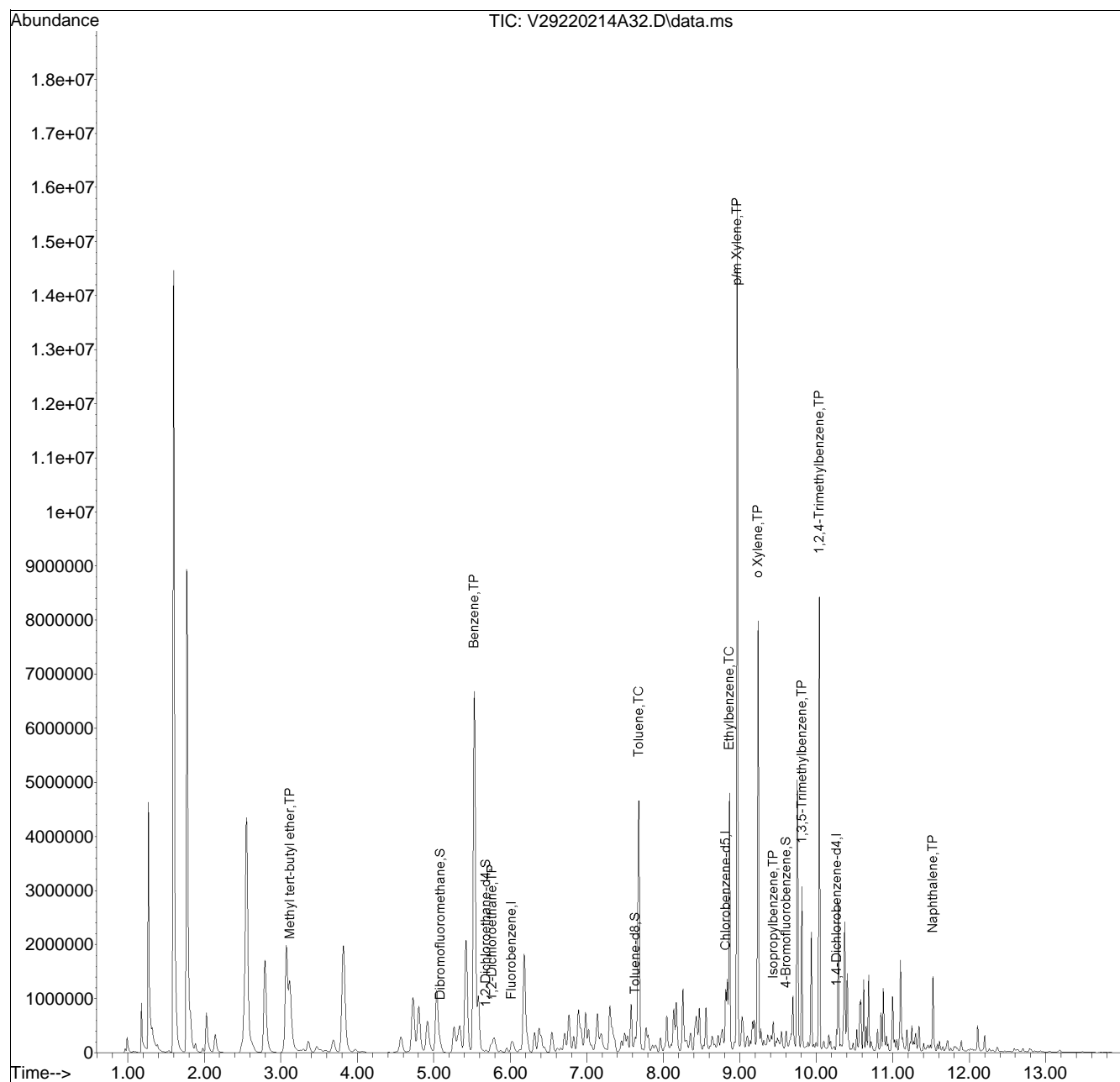


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220214\
 Data File : V29220214A32.D
 Acq On : 15 Feb 2022 01:08 am
 Operator : VOA129:JC
 Sample : L2206607-02,31,5.30,5,,B,R2F
 Misc : WG1605096,ICAL18564
 ALS Vial : 32 Sample Multiplier: 1

Quant Time: Feb 15 09:17:36 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220214\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V29220214A01.D•





ANALYTICAL REPORT

Lab Number:	L2206903
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	03/02/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206903-01	PB-28-19R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 10:20	02/09/22
L2206903-02	PB-28-19R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 10:40	02/09/22
L2206903-03	PB-37-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 12:35	02/09/22
L2206903-04	PB-37-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 12:45	02/09/22
L2206903-05	PB-37-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 13:10	02/09/22
L2206903-06	PB-37-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 13:15	02/09/22
L2206903-07	PB-37-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 13:20	02/09/22
L2206903-08	PB-38-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 14:30	02/09/22
L2206903-09	PB-38-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:35	02/09/22
L2206903-10	PB-38-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 14:40	02/09/22
L2206903-11	PB-38-13R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:50	02/09/22
L2206903-12	PB-38-13R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 15:00	02/09/22

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Case Narrative (continued)

Report Submission

March 02, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206903-02, -04, and -12; and the results of the Total Lead analysis performed on L2206903-07.

February 22, 2022: This is a preliminary report. Report Revision: At the client's request, the Volatile Organics reporting list has been amended on L2206903-01.

February 16, 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

The analyses performed were specified by the client.

Volatile Organics

L2206903-04: The sample was analyzed with the method required holding time exceeded.

L2206903-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (326%); 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

L2206903-01: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

Total Metals

The WG1603728-3 MS recovery, performed on L2206903-05, is outside the acceptance criteria for lead (68%). A post digestion spike was performed and yielded an unacceptable recovery for lead (49%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

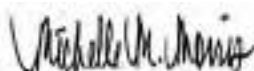
Case Narrative (continued)

native sample should be considered estimated.

The WG1603728-6 serial dilution analysis, associated with L2206903-05, had a %D above the acceptance criteria for lead (35%).

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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 03/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-01 D
 Client ID: PB-28-19R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 10:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 13:44
 Analyst: JC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Benzene	24.		mg/kg	1.6	0.52	50
Toluene	510		mg/kg	3.2	1.7	50
Ethylbenzene	120		mg/kg	3.2	0.44	50
p/m-Xylene	550		mg/kg	6.3	1.8	50
o-Xylene	200		mg/kg	3.2	0.92	50
Xylenes, Total	750		mg/kg	3.2	0.92	50
1,3,5-Trimethylbenzene	79.		mg/kg	6.3	0.61	50
1,2,4-Trimethylbenzene	240		mg/kg	6.3	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-02 D
 Client ID: PB-28-19R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 10:40
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/23/22 21:13
 Analyst: AJK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	51.		mg/kg	0.32	0.11	10
Toluene	9.9		mg/kg	0.65	0.35	10
Ethylbenzene	95.		mg/kg	0.65	0.092	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-03 D
 Client ID: PB-37-05R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:35
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 14:04
 Analyst: JC
 Percent Solids: 90%

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	11.		mg/kg	1.7	0.58	50
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-04
 Client ID: PB-37-05R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:45
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 20:56
 Analyst: MKS
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0080		mg/kg	0.00050	0.00017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	326	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-11
 Client ID: PB-38-13R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 14:50
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 14:25
 Analyst: JC
 Percent Solids: 90%

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	3.0		mg/kg	0.024	0.0078	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-12
 Client ID: PB-38-13R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 15:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/23/22 21:41
 Analyst: KDU
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.16		mg/kg	0.035	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,11 Batch: WG1604658-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
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
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	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1608829-10					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 02/23/22 20:19
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:26
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1610140-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,11 Batch: WG1604658-3 WG1604658-4								
Benzene	85		85		70-130	0		30
Toluene	91		89		70-130	2		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

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: WG1608829-8 WG1608829-9								
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
Ethylbenzene	98		100		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1610140-3 WG1610140-4								
Benzene	87		84		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	98		98		70-130



SEMIVOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-01
 Client ID: PB-28-19R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 10:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/16/22 11:36
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/15/22 21:06

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	23.		mg/kg	0.58	0.071	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	82		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D
 Analytical Date: 02/16/22 01:12
 Analyst: IM

Extraction Method: EPA 3546
 Extraction Date: 02/15/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

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: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120



METALS



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-05

Date Collected: 02/09/22 13:10

Client ID: PB-37-11R-0.0-0.5

Date Received: 02/09/22

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	161		mg/kg	2.30	0.123	1	02/11/22 09:25	02/13/22 17:41	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-06
 Client ID: PB-37-11R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 13:15
 Date Received: 02/09/22
 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	854		mg/kg	2.26	0.121	1	02/11/22 09:25	02/13/22 17:05	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-07

Date Collected: 02/09/22 13:20

Client ID: PB-37-11R-14.0-14.5

Date Received: 02/09/22

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	52.2		mg/kg	2.38	0.128	1	02/23/22 22:40	03/02/22 11:35	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-08

Date Collected: 02/09/22 14:30

Client ID: PB-38-11R-0.0-0.5

Date Received: 02/09/22

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	18.7		mg/kg	2.15	0.115	1	02/11/22 09:25	02/13/22 17:18	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE

Lab Number: L2206903

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-09

Date Collected: 02/09/22 14:35

Client ID: PB-38-11R-6.0-6.5

Date Received: 02/09/22

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	22.6		mg/kg	2.21	0.118	1	02/11/22 09:25	02/13/22 17:23	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

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): 05-06,08-09 Batch: WG1603728-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

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): 07 Batch: WG1608436-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 07 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5												
Lead, Total	161	48.8	194	68	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	44	Q	-	-		75-125	-		20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206903

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	190	mg/kg	17		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	23	Q	20



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

**Lab Serial Dilution
 Analysis
 Batch Quality Control**

Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	218	mg/kg	35	Q	20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20



INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-01
Client ID: PB-28-19R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 10:20
Date Received: 02/09/22
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	84.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-02
Client ID: PB-28-19R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 10:40
Date Received: 02/09/22
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	79.1		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-03
Client ID: PB-37-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:35
Date Received: 02/09/22
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	90.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-04
Client ID: PB-37-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:45
Date Received: 02/09/22
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	91.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-05
 Client ID: PB-37-11R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 13:10
 Date Received: 02/09/22
 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	82.1		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-06
Client ID: PB-37-11R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 13:15
Date Received: 02/09/22
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	83.7		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-07
Client ID: PB-37-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 13:20
Date Received: 02/09/22
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	81.2		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-08
 Client ID: PB-38-11R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 14:30
 Date Received: 02/09/22
 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	89.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-09
Client ID: PB-38-11R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 14:35
Date Received: 02/09/22
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	85.5		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-11
Client ID: PB-38-13R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 14:50
Date Received: 02/09/22
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	89.9		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-12
Client ID: PB-38-13R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 15:00
Date Received: 02/09/22
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	79.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206903

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,05-06,08-09,11 QC Batch ID: WG1603384-1 QC Sample: L2206903-01 Client ID: PB-28-19R-6.0-6.5						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,07,12 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206903**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**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(*)
L2206903-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206903-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-01E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206903-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7),HOLD-8270(14)
L2206903-02E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		HOLD-8270(14)
L2206903-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-05A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-05B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-06A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-06B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206903**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206903-07A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-07B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-08A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-08B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-09A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-09B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-10A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2206903-10B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		HOLD-METAL(180)
L2206903-11A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-11B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2206903-12A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-12B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)

Project Name: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206903**Project Number:** 200.00135.005.03**Report Date:** 03/02/22

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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

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.

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: PES REFINERY-AST CLOSURE-SITE**Lab Number:** L2206903**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**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: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

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.

CHAIN OF CUSTODY

PAGE 1 OF 2



Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3286

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
 Due Date: **5-DAY** Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to add@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		
06903-01	PB-28-19R-6.0-6.5	2/9	1020	S	TS
02	PB-28-19R-14.0-14.5		1040		
03	PB-37-05R-6.0-6.5		1235		
04	PB-37-05R-14.0-14.5		1245		
05	PB-37-11R-0.0-0.5		1310		
06	PB-37-11R-6.0-6.5		1315		
07	PB-37-11R-14.0-14.5		1320		
08	PB-38-11R-0.0-0.5		1430		
09	PB-38-11R-6.0-6.5		1435		
10	PB-38-11R-14.0-14.5		1440		

Project Information

Project Name: PES Refinery - Delineation **TS**
SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Date Rec'd in Lab: 1 **2/10/22**

ALPHA Job #: **L2206903**

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: PADEP Storage Tank Sampling Criteria:

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYL BENZENE	XYLENES	Sample Specific Comments	TOTAL # BOTTLES
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		5
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	HOLD	4
<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"/>		4
<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"/>	HOLD	4
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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"/>		2
<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	2
<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"/>		2
<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	2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/9 1540	<i>[Signature]</i>	2/9 1540
<i>[Signature]</i>	2/9 1800	<i>[Signature]</i>	2/9/22 1800
<i>[Signature]</i>	2/9/22	<i>[Signature]</i>	2/9/22 2030
<i>[Signature]</i>	2/9/22	<i>[Signature]</i>	2/10/22 0100

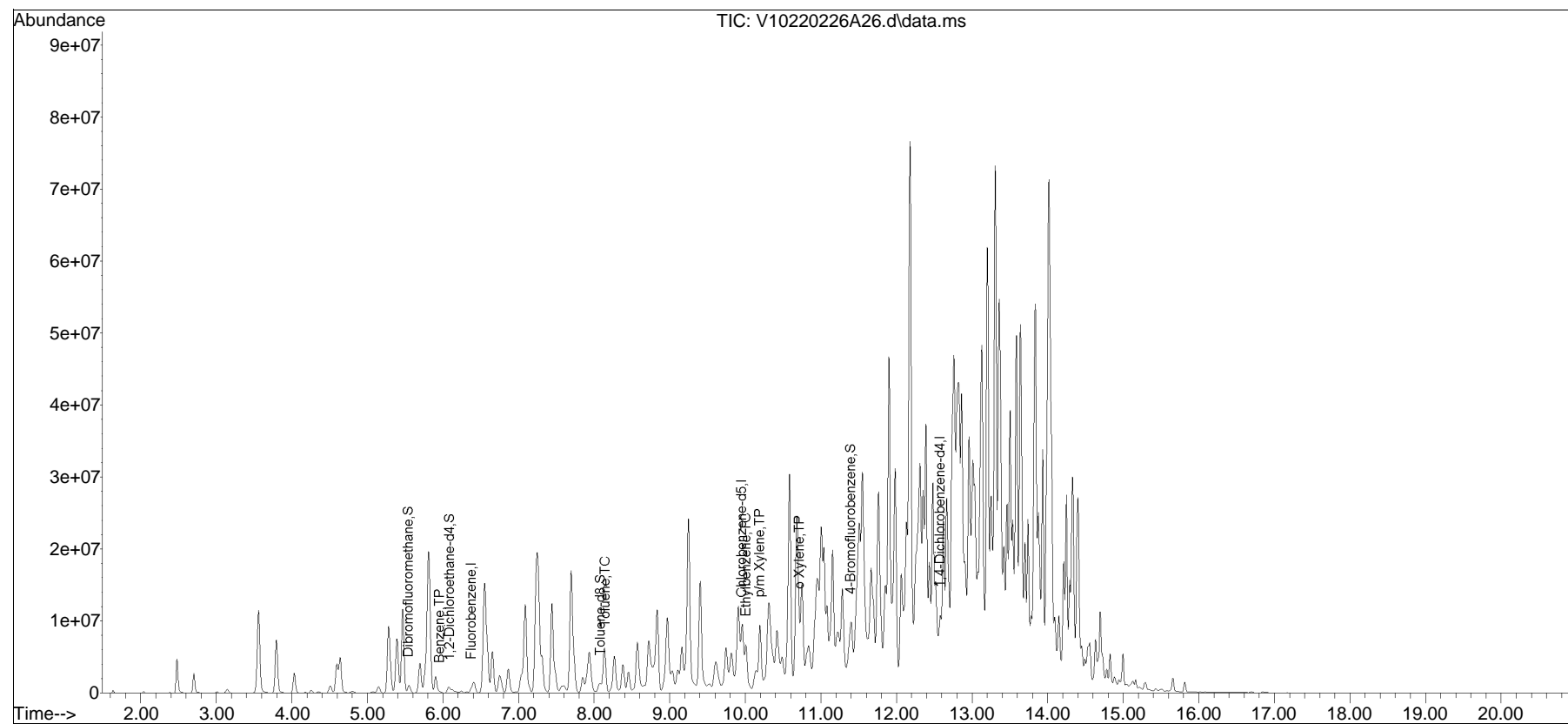
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220226A\
Data File : V10220226A26.d
Acq On : 26 Feb 2022 8:56 pm
Operator : VOA110:MKS
Sample : L2206903-04,31,5.41,5,,B,R2F
Misc : WG1610140,ICAL18690
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Feb 28 17:06:29 2022
Quant Method : I:\VOLATILES\VOA110\2022\220226A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List20226A\V10220226A01.d•





ANALYTICAL REPORT

Lab Number:	L2206907
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/16/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206907-01	PB-28-09-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:30	02/09/22
L2206907-02	PB-28-10-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:50	02/09/22
L2206907-03	PB-28-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:10	02/09/22
L2206907-04	PB-28-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:20	02/09/22
L2206907-05	PB-37-04-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:10	02/09/22
L2206907-06	PB-37-07-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:20	02/09/22
L2206907-07	PB-37-08-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:30	02/09/22
L2206907-08	PB-37-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:40	02/09/22
L2206907-09	PB-37-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:50	02/09/22
L2206907-10	FB-220209	WATER	PHILADELPHIA, PA	02/09/22 12:00	02/09/22
L2206907-11	TB-220209	WATER	PHILADELPHIA, PA	02/09/22 00:00	02/09/22

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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

L2206907-10: Sample containers for the Microextractables analysis were received for the "FB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

L2206907-11: Sample containers for the Microextractables analysis were received for the "TB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206907-01: 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.

L2206907-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (225%); 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.

L2206907-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (63%) and dibromofluoromethane (63%) due to interference with the Internal Standard.

L2206907-02D, -03D, and -09D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2206907-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); 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.

L2206907-03D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); 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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Case Narrative (continued)

L2206907-06: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (60%) and dibromofluoromethane (63%) due to interference with the Internal Standard.

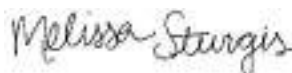
L2206907-08: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2206907-08: 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.

L2206907-09D: 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:

 Melissa Sturgis

Title: Technical Director/Representative

Date: 02/16/22

ORGANICS



VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
 Client ID: PB-28-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:30
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 10:37
 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	0.44	E	mg/kg	0.0020	0.00020	1
Benzene	0.55	E	mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0078		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.10		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.061		mg/kg	0.0020	0.00056	1
o-Xylene	0.0036		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.065		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.059		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0051		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0089		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	63	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	225	Q	70-130
Dibromofluoromethane	63	Q	70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
 Client ID: PB-28-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:30
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 18:17
 Analyst: KJD
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.76		mg/kg	0.12	0.012	1
Benzene	1.1		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.034	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.26		mg/kg	0.060	0.0084	1
p/m-Xylene	0.20		mg/kg	0.12	0.033	1
o-Xylene	0.028	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.23	J	mg/kg	0.060	0.017	1
Isopropylbenzene	0.14		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.097	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02 D
 Client ID: PB-28-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 10:58
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	1.4		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	0.37		mg/kg	0.13	0.072	2
1,2-Dibromoethane	ND		mg/kg	0.066	0.039	2
Ethylbenzene	5.3		mg/kg	0.13	0.019	2
p/m-Xylene	4.8		mg/kg	0.26	0.074	2
o-Xylene	0.59		mg/kg	0.13	0.038	2
Xylenes, Total	5.4		mg/kg	0.13	0.038	2
Isopropylbenzene	2.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.77		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	4.9		mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03 D
 Client ID: PB-28-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 11:18
 Analyst: JC
 Percent Solids: 80%

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	0.030	J	mg/kg	0.067	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.073	2
1,2-Dibromoethane	ND		mg/kg	0.067	0.039	2
Ethylbenzene	2.6		mg/kg	0.13	0.019	2
p/m-Xylene	0.15	J	mg/kg	0.27	0.075	2
o-Xylene	0.039	J	mg/kg	0.13	0.039	2
Xylenes, Total	0.19	J	mg/kg	0.13	0.039	2
Isopropylbenzene	1.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	1.2		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	3.7		mg/kg	0.27	0.045	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
 Client ID: PB-28-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 11:39
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00047	J	mg/kg	0.0025	0.00025	1
Benzene	0.20		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0041		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.020		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.025		mg/kg	0.0025	0.00070	1
o-Xylene	0.0032		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.028		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.012		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.048		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
 Client ID: PB-37-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:10
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 12:00
 Analyst: JC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0029		mg/kg	0.0018	0.00018	1
Benzene	0.00024	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.00016	J	mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00040	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
 Client ID: PB-37-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 12:21
 Analyst: JC
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0018	0.00018	1
Benzene	0.021		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.012		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.081		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.13		mg/kg	0.0018	0.00050	1
o-Xylene	0.0080		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.14		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.031		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	60	Q	70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	63	Q	70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-07
 Client ID: PB-37-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:30
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 12:41
 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	0.00072	J	mg/kg	0.0020	0.00020	1
Benzene	0.00019	J	mg/kg	0.00050	0.00016	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	0.00015	J	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	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
 Client ID: PB-37-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 13:02
 Analyst: JC
 Percent Solids: 94%

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	0.017	J	mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.050	0.013	1
Toluene	0.034	J	mg/kg	0.050	0.027	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.19		mg/kg	0.050	0.0071	1
p/m-Xylene	0.18		mg/kg	0.10	0.028	1
o-Xylene	0.039	J	mg/kg	0.050	0.015	1
Xylenes, Total	0.22	J	mg/kg	0.050	0.015	1
Isopropylbenzene	0.27		mg/kg	0.050	0.0055	1
1,3,5-Trimethylbenzene	0.042	J	mg/kg	0.10	0.0097	1
1,2,4-Trimethylbenzene	0.13		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	164	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09 D
 Client ID: PB-37-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:50
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 13:23
 Analyst: JC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92	J	mg/kg	1.1	0.11	10
Benzene	1.7		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	ND		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	0.56		mg/kg	0.56	0.079	10
p/m-Xylene	ND		mg/kg	1.1	0.32	10
o-Xylene	ND		mg/kg	0.56	0.16	10
Xylenes, Total	ND		mg/kg	0.56	0.16	10
Isopropylbenzene	3.8		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	ND		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	ND		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
 Client ID: FB-220209
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/11/22 16:56
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 02/11/22 14:30

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	B

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
 Client ID: FB-220209
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/10/22 10:23
 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
1,2-Dibromoethane	ND		ug/l	2.0	0.19	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	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-11
 Client ID: TB-220209
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 00:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/11/22 17:04
 Analyst: GT

Extraction Method: EPA 8011
 Extraction Date: 02/11/22 14:30

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	B

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-11
 Client ID: TB-220209
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 00:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/10/22 10:44
 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	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260C
 Analytical Date: 02/10/22 08:21
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1604023-5					
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
1,2-Dibromoethane	ND		ug/l	2.0	0.19
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	106		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/11/22 15:57
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 02/11/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 10-11 Batch: WG1604118-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08-09 Batch: WG1604658-5					
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	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-07 Batch: WG1604660-5					
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	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1605520-5					
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1604023-3 WG1604023-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		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	100		110		70-130	10		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		100		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	98		101		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 10-11 Batch: WG1604118-2									
1,2-Dibromoethane	110		-		80-120	-		20	B

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08-09 Batch: WG1604658-3 WG1604658-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-07 Batch: WG1604660-3 WG1604660-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130



SEMIVOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
 Client ID: PB-28-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:30
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 16:52
 Analyst: WR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	95		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	54		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02
 Client ID: PB-28-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 17:15
 Analyst: WR
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.19	J	mg/kg	0.20	0.024	1
Fluorene	0.45		mg/kg	0.20	0.020	1
Phenanthrene	0.74		mg/kg	0.12	0.024	1
Anthracene	0.086	J	mg/kg	0.12	0.039	1
Pyrene	0.030	J	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	86		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	53		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
 Client ID: PB-28-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 17:37
 Analyst: WR
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.6		mg/kg	0.21	0.025	1
Fluorene	0.19	J	mg/kg	0.21	0.020	1
Phenanthrene	0.27		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	0.023	J	mg/kg	0.12	0.021	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.051	1
Benzo(ghi)perylene	ND		mg/kg	0.17	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	58		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
 Client ID: PB-28-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 18:00
 Analyst: WR
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	0.022	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	89		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	74		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
 Client ID: PB-37-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:10
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 18:22
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	111		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	81		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
 Client ID: PB-37-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:20
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 18:45
 Analyst: WR
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	0.021	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	47		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-07
 Client ID: PB-37-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:30
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 19:07
 Analyst: WR
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	108		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	70		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
 Client ID: PB-37-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/14/22 19:29
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 02/12/22 03:41

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	104		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09
 Client ID: PB-37-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:50
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/16/22 11:59
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 02/15/22 21:06

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	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	81		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
 Client ID: FB-220209
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
 Date Received: 02/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/13/22 12:58
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/12/22 10:42

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	72		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/13/22 18:02
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG1604253-1					
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	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 11:37
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 10 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/16/22 01:12
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 02/15/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 09 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 10 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 09 Batch: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140		12	50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120

METALS



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01

Date Collected: 02/09/22 08:30

Client ID: PB-28-09-SS01

Date Received: 02/09/22

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	8.50		mg/kg	2.31	0.124	1	02/11/22 09:25	02/13/22 17:28	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02

Date Collected: 02/09/22 08:50

Client ID: PB-28-10-SS01

Date Received: 02/09/22

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	5.65		mg/kg	2.33	0.125	1	02/11/22 09:25	02/13/22 17:32	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
 Client ID: PB-28-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
 Date Received: 02/09/22
 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	7.82		mg/kg	2.37	0.127	1	02/11/22 09:25	02/13/22 17:37	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04

Date Collected: 02/09/22 09:20

Client ID: PB-28-14-SS01

Date Received: 02/09/22

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	35.5		mg/kg	2.41	0.129	1	02/11/22 09:25	02/13/22 18:13	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05

Date Collected: 02/09/22 11:10

Client ID: PB-37-04-SS01

Date Received: 02/09/22

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	12.4		mg/kg	2.04	0.109	1	02/11/22 09:25	02/13/22 18:18	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06

Date Collected: 02/09/22 11:20

Client ID: PB-37-07-SS01

Date Received: 02/09/22

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	5.19		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:22	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-07
 Client ID: PB-37-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:30
 Date Received: 02/09/22
 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	15.9		mg/kg	2.12	0.114	1	02/11/22 09:25	02/13/22 18:27	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
 Client ID: PB-37-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
 Date Received: 02/09/22
 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	58.5		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:32	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09

Date Collected: 02/09/22 11:50

Client ID: PB-37-14-SS01

Date Received: 02/09/22

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	7.42		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:37	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2206907

Project Number: 200.00135.005.03

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10

Date Collected: 02/09/22 12:00

Client ID: FB-220209

Date Received: 02/09/22

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	02/10/22 13:15	02/10/22 20:25	EPA 3005A	1,6020B	SV



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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): 10 Batch: WG1603545-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/10/22 13:15	02/10/22 18:08	1,6020B	SV

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): 01-09 Batch: WG1603728-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1603545-2								
Lead, Total	96		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-3 QC Sample: L2206783-01 Client ID: MS Sample												
Lead, Total	1.486	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: MS Sample												
Lead, Total	161	48.8	194	68	Q	-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-4 QC Sample: L2206783-01 Client ID: DUP Sample						
Lead, Total	1.486	1.504	ug/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	190	mg/kg	17		20

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

**Lab Serial Dilution
 Analysis
 Batch Quality Control**

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	218	mg/kg	35	Q	20



INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
Client ID: PB-28-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:30
Date Received: 02/09/22
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	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02
Client ID: PB-28-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
Date Received: 02/09/22
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	81.4		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
 Client ID: PB-28-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
 Date Received: 02/09/22
 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	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
 Client ID: PB-28-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:20
 Date Received: 02/09/22
 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	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
Client ID: PB-37-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:10
Date Received: 02/09/22
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	94.0		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Client ID: PB-37-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:20
Date Received: 02/09/22
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	92.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-07
Client ID: PB-37-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:30
Date Received: 02/09/22
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	88.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
Client ID: PB-37-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
Date Received: 02/09/22
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	93.5		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09
 Client ID: PB-37-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:50
 Date Received: 02/09/22
 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	93.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1603381-1 QC Sample: L2205996-17 Client ID: DUP Sample						
Solids, Total	96.8	97.2	%	0		20

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2206907**Project Number:** 200.00135.005.03**Report Date:** 02/16/22**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(*)
L2206907-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206907-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-01F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-02F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-03F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2206907**Project Number:** 200.00135.005.03**Report Date:** 02/16/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-04F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-05A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-05B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-05E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-06A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-06B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-06E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-07A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-07B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-07E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-08A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-08B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-08E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-09A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-09B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-09E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-10A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2206907**Project Number:** 200.00135.005.03**Report Date:** 02/16/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-10B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10C	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10E	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10F	Plastic 250ml HNO3 preserved	B	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2206907-10G	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-10H	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-11A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11C	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-11D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2206907**Project Number:** 200.00135.005.03**Report Date:** 02/16/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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.

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: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2206907**Project Number:** 200.00135.005.03**Report Date:** 02/16/22**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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

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-Terpeneol

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-Terpeneol; 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 Mansfield, MA
 TEL: 508-898-9220 TEL: 508-522-9300
 FAX: 508-898-9193 FAX: 508-522-3288

Project Information

Project Name: Philadelphia Refinery
SOIL CHARACTERIZATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:
 Email: William.Schmidt@ransomenv.com

Turn-Around Time
 Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: **5-DAY** 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 edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: **2/10/22**

ALPHA Job #: **L22069107**

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

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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 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															
069107-01	PB-28-09-SS01	2/9	830	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"/>		0
02	PB-28-10-SS01		850	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"/>		6
03	PB-28-13-SS01		910	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"/>		6
04	PB-28-14-SS01		920	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"/>		6
05	PB-37-04-SS01		1110	S	TS	<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"/>		6
06	PB-37-07-SS01		1120	S	TS	<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"/>		6
07	PB-37-08-SS01		1130	S	TS	<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"/>		6
08	PB-37-13-SS01		1140	S	TS	<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"/>		6
09	PB-37-1A-SS01		1150	S	TS	<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"/>		6
10	FB-220209		1200	BU	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"/>		8

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: **2/9/22 1540**
 Received By: *[Signature]* Date/Time: **2/9/22 1800**
[Signature] Date/Time: **2/9/22 2030**
[Signature] Date/Time: **2/9/22 0100**
[Signature] Date/Time: **2/10/22 0255**

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: 01-011-1.0 (Rev. 5-14-12)

PADEP Short List Analytical List:

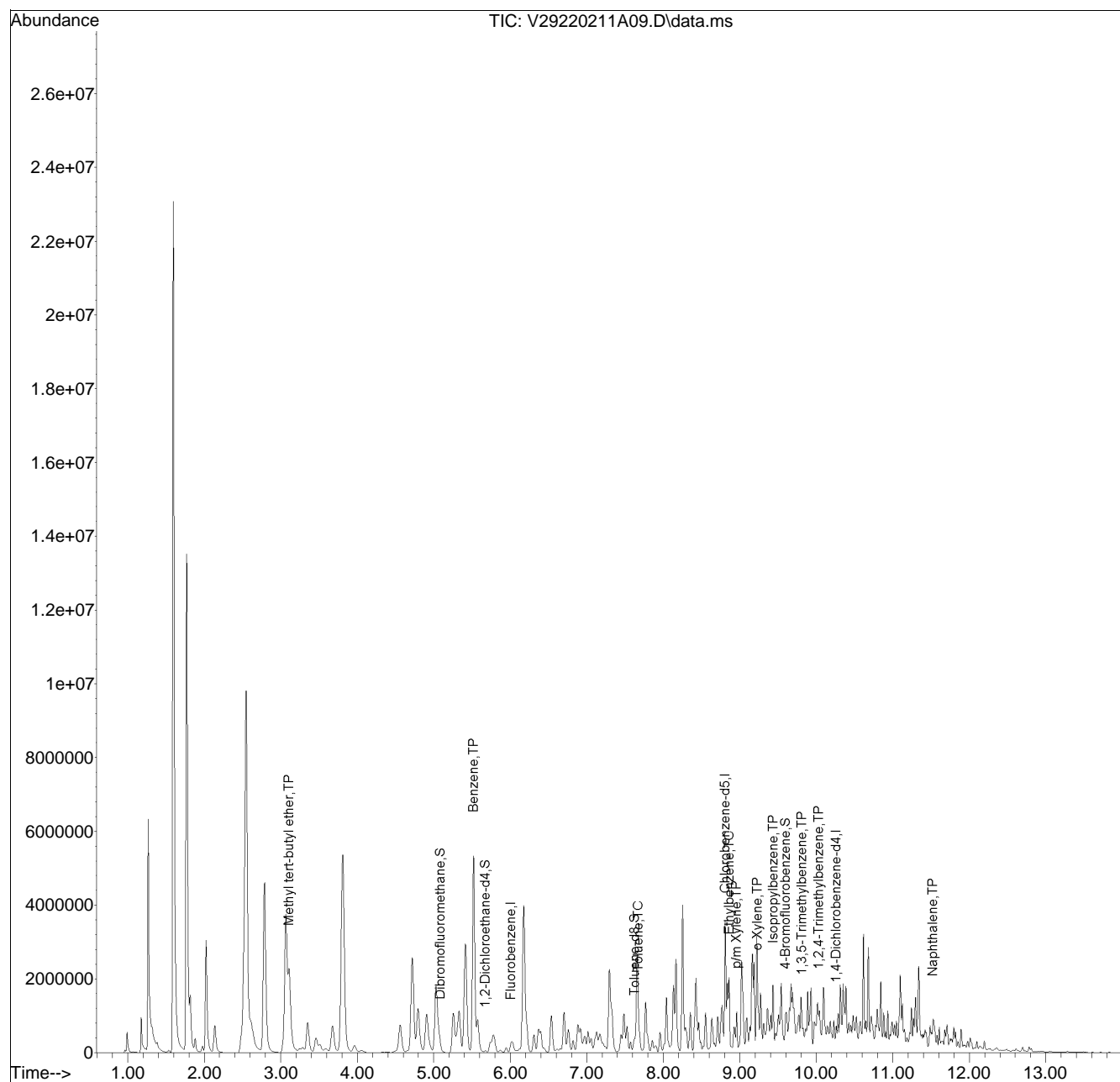
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl 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\VOA129\2022\220211A\
 Data File : V29220211A09.D
 Acq On : 11 Feb 2022 10:37 am
 Operator : VOA129:JC
 Sample : L2206907-01,31,6.14,5,,C,R2F
 Misc : WG1604660,ICAL18564
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 14 07:53:53 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

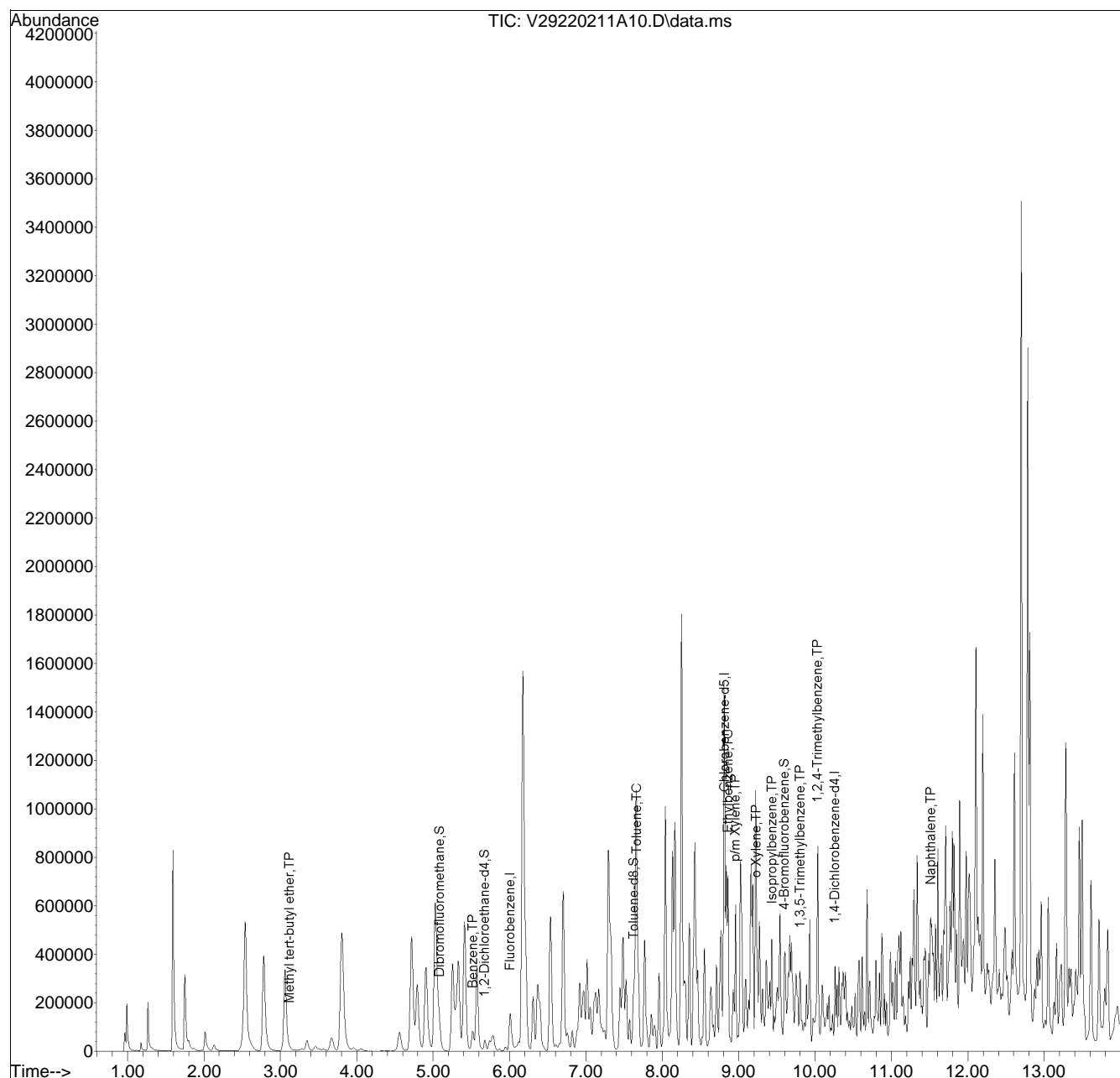


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
 Data File : V29220211A10.D
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 Operator : VOA129:JC
 Sample : L2206907-02D,31H,5.63,5,0.050,,A,R2F
 Misc : WG1604658,ICAL18564
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 14 06:32:26 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

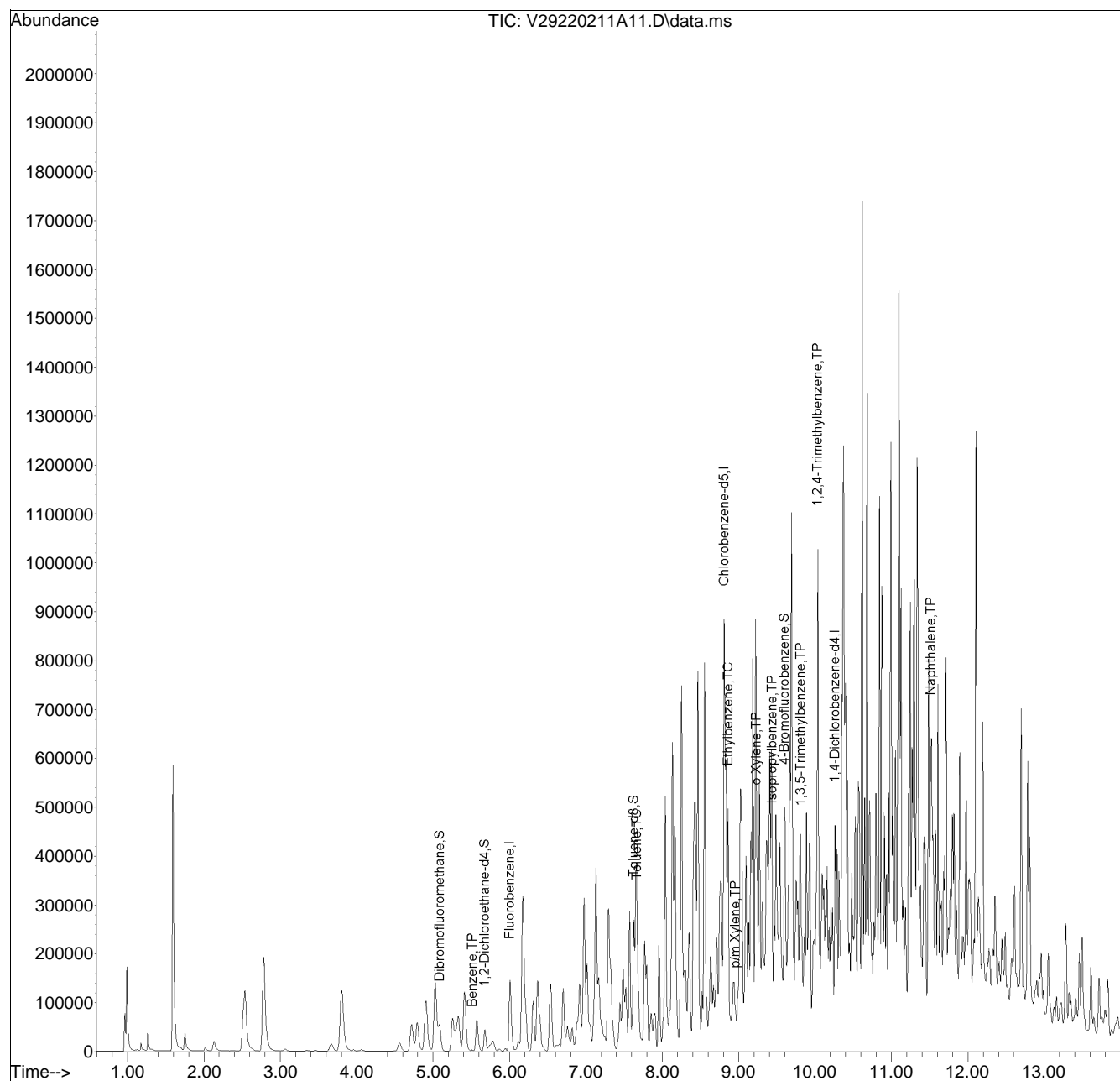


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
 Data File : V29220211A11.D
 Acq On : 11 Feb 2022 11:18 am
 Operator : VOA129:JC
 Sample : L2206907-03D,31H,5.80,5,0.050,,A,R2F
 Misc : WG1604658,ICAL18564
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 14 07:55:41 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

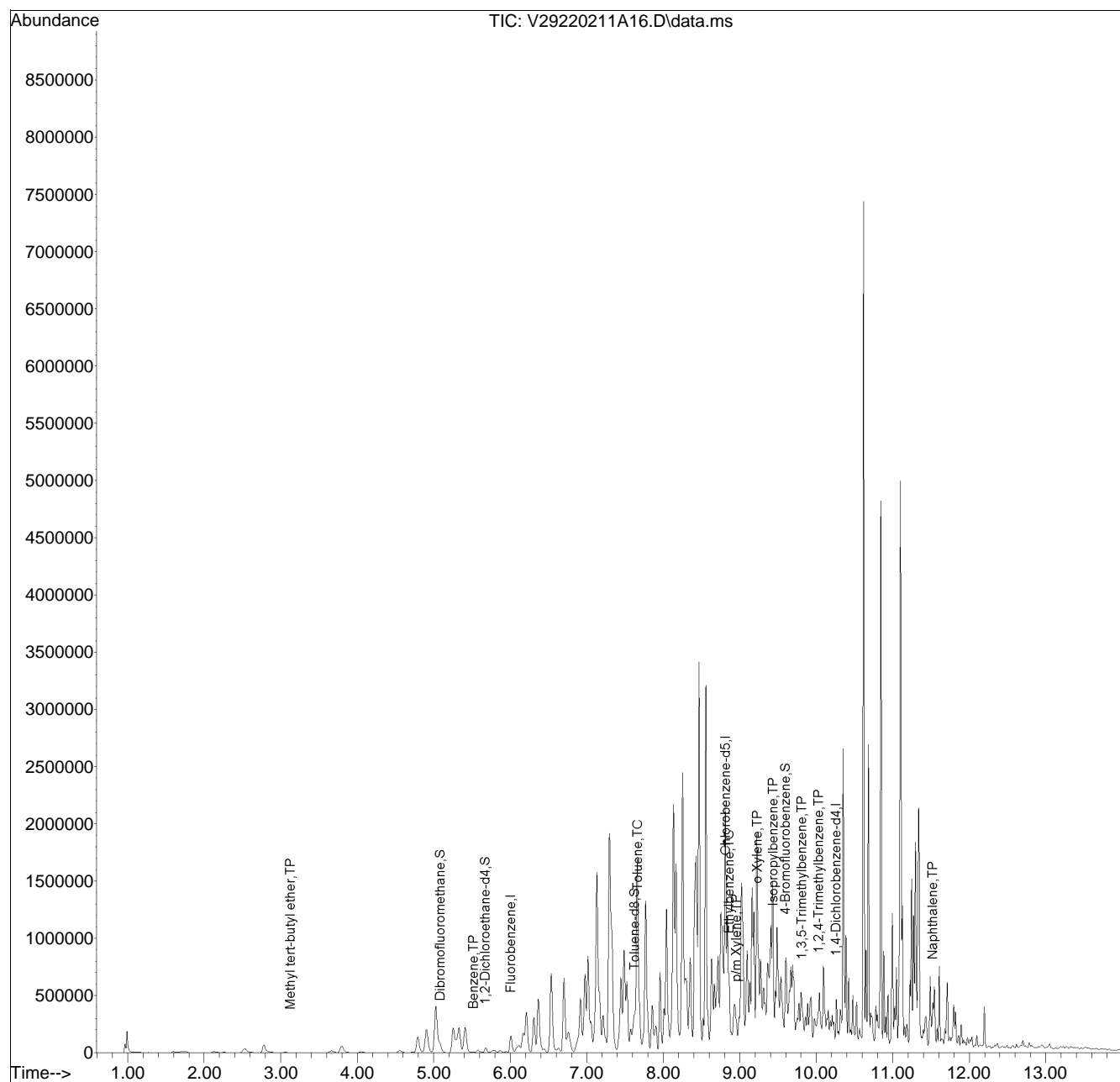


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
 Data File : V29220211A16.D
 Acq On : 11 Feb 2022 01:02 pm
 Operator : VOA129:JC
 Sample : L2206907-08,31H,5.69,5,0.100,,A,R2F
 Misc : WG1604658,ICAL18564
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 07:58:50 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

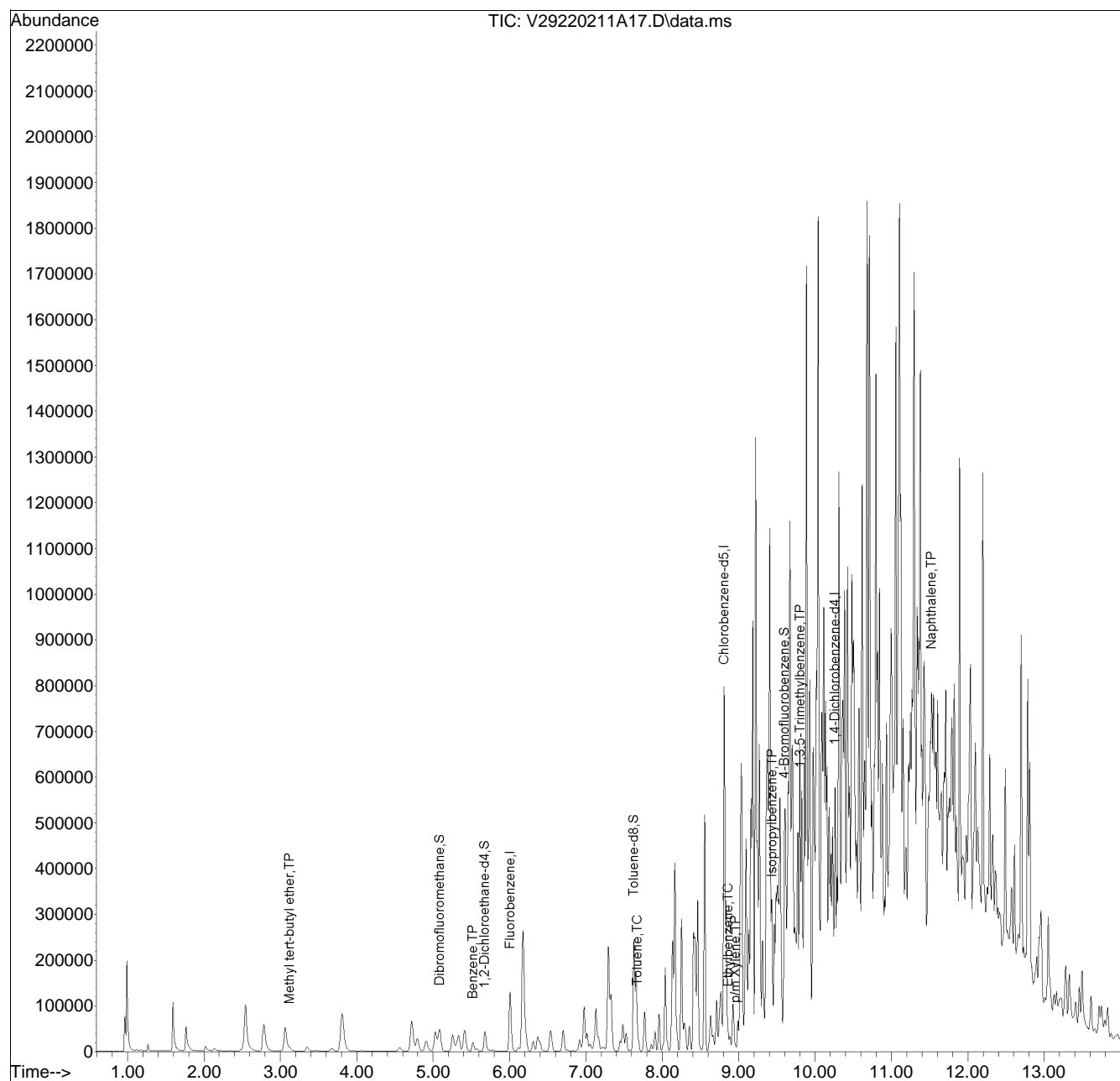


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
 Data File : V29220211A17.D
 Acq On : 11 Feb 2022 01:23 pm
 Operator : VOA129:JC
 Sample : L2206907-09D,31H,5.02,5,0.010,,A,R2F
 Misc : WG1604658,ICAL18564
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Feb 14 07:59:20 2022
 Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Dec 14 10:56:36 2021
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•





ANALYTICAL REPORT

Lab Number:	L2207184
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	03/01/22

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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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207184-01	PB-39-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:15	02/10/22
L2207184-02	PB-39-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:25	02/10/22
L2207184-03	PB-85-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:45	02/10/22
L2207184-04	PB-85-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:55	02/10/22
L2207184-05	PB-36-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:00	02/10/22
L2207184-06	PB-36-07R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 11:40	02/10/22
L2207184-07	PB-36-07R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/10/22 11:30	02/10/22
L2207184-08	PB-36-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:50	02/10/22
L2207184-09	PB-35-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-10	PB-35-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-11	PB-36-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 10:45	02/10/22

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Case Narrative (continued)

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207184-02, -04, and -09.

Report Revision

February 22, 2022. This is a preliminary report. At the client's request, the Volatile Organics reporting list has been amended on L2207184-11, and the Client IDs have been revised on L2207184-07 and -08.

Report Submission

February 18, 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

L2207184-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); 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.

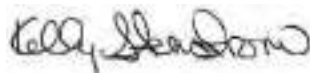
L2207184-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207184-06D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2207184-06D: 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.

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 Sterstrom

Title: Technical Director/Representative

Date: 03/01/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-01
 Client ID: PB-39-12R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:15
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 16:41
 Analyst: KD
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Benzene	1.7		mg/kg	0.031	0.010	1
Toluene	7.1		mg/kg	0.062	0.034	1
Ethylbenzene	0.35		mg/kg	0.062	0.0087	1
1,3,5-Trimethylbenzene	0.094	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.46		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-02 D
 Client ID: PB-39-12R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:25
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/23/22 22:36
 Analyst: KDU
 Percent Solids: 87%

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	45.		mg/kg	0.70	0.23	20
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-03 D
 Client ID: PB-85-06R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:45
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 17:06
 Analyst: KD
 Percent Solids: 85%

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	18.		mg/kg	0.52	0.17	20
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-04
 Client ID: PB-85-06R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:55
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 21:13
 Analyst: NLK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0031		mg/kg	0.00047	0.00015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-06 D
 Client ID: PB-36-07R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 17:31
 Analyst: KD
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	2.9		mg/kg	0.14	0.020	2.5
p/m-Xylene	4.4		mg/kg	0.28	0.078	2.5
o-Xylene	0.31		mg/kg	0.14	0.041	2.5
Xylenes, Total	4.7		mg/kg	0.14	0.041	2.5
1,3,5-Trimethylbenzene	2.0		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	17.		mg/kg	0.28	0.047	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-09
 Client ID: PB-35-08R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 00:24
 Analyst: KDU
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.24		mg/kg	0.051	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-10 D
 Client ID: PB-35-08R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 17:56
 Analyst: KD
 Percent Solids: 86%

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	2.5		mg/kg	0.15	0.051	5
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-11
 Client ID: PB-36-03R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 10:45
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 18:21
 Analyst: KD
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00074		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.00041	J	mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11 Batch: WG1605544-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
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	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06,10 Batch: WG1605547-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
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
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	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,09 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/24/22 20:46
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1609164-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207184

Project Number: 200.00135.005.03

Report Date: 03/01/22

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 Batch: WG1605544-3 WG1605544-4								
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207184

Project Number: 200.00135.005.03

Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06,10 Batch: WG1605547-3 WG1605547-4								
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
Ethylbenzene	103		101		70-130	2		30
p/m-Xylene	103		101		70-130	2		30
o-Xylene	104		101		70-130	3		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,09 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1609164-3 WG1609164-4								
Benzene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		90		70-130
Toluene-d8	92		91		70-130
4-Bromofluorobenzene	85		85		70-130
Dibromofluoromethane	98		102		70-130



SEMIVOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-06
 Client ID: PB-36-07R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 00:32
 Analyst: WR
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 13:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	2.2		mg/kg	0.17	0.021	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-07
 Client ID: PB-36-07R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 08:03
 Analyst: IM
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 17:50

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	0.20	0.025	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	69		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/17/22 13:34
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 02/16/22 22:53

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120



INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-01
 Client ID: PB-39-12R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:15
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-02
Client ID: PB-39-12R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:25
Date Received: 02/10/22
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	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-03
 Client ID: PB-85-06R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:45
 Date Received: 02/10/22
 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	85.3		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-04
Client ID: PB-85-06R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:55
Date Received: 02/10/22
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	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-06
 Client ID: PB-36-07R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:40
 Date Received: 02/10/22
 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	93.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-07
 Client ID: PB-36-07R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:30
 Date Received: 02/10/22
 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	80.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-09
Client ID: PB-35-08R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
Date Received: 02/10/22
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	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-10
 Client ID: PB-35-08R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-11
Client ID: PB-36-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 10:45
Date Received: 02/10/22
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	92.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Lab Duplicate Analysis *Batch Quality Control*

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,06-07,10-11 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: PB-39-12R-6.0-6.5						
Solids, Total	80.4	82.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,09 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20



Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207184**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**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(*)
L2207184-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-01B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-02B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-03B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-04B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-05B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-06B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)

Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207184**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207184-06C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-06D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-06E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		PA-PAH(14)
L2207184-07A	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		TS(7),PA-PAH(14)
L2207184-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-08B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-08E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		HOLD-8270(14)
L2207184-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-11A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-11B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

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.

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

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-Terpeneol

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-Terpeneol; 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: PES Refinery - Delineation
SITE INVESTIGATION

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: **5-DAY**
Time:

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3286

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 per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 1 **2/11/22**

ALPHA Job #: **LAH15 02207154**

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

PADEP Storage Tank Sampling

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benz(a)pyrene ^{TS}	Benzofluoranthene ^{TS}	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYL BENZENE	XYLENES	Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time															
07164-01	PB-34-12R-6.0-6.5	2/10	09:15	S	TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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"/>		4
-02	PB-34-12R-14.0-14.5		09:25	S	TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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"/>	HOLD	4
-03	PB-85-06R-6.0-6.5		09:45	S	TS	<input 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"/>		4
-04	PB-85-06R-14.0-14.5		09:55	S	TS	<input 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"/>	HOLD	4
-05	PB-36-03R-14.0-14.5		11:00	S	TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD	4
-06	PB-36-67R-6.0-6.5		11:40	S	TS	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
-07	PB-37-07R-0.0-0.5		11:30	S	TS	<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"/>		
-08	PB-37-07R-14.0-14.5		11:50	S	TS	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	HOLD	
-09	PB-35-08R-14.0-14.5		11:20	S	TS	<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"/>	HOLD	4
-10	PB-35-08R-6.0-6.5		11:30	S	TS	<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

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

Sample Matrix

Sampler's Initials

Lead

Benzene

Toluene

Benz(a)pyrene

Benzofluoranthene

Naphthalene

1,2,4-TMB

1,3,5-TMB

ETHYL BENZENE

XYLENES

Sample Specific Comments

TOTAL # BOTTLES

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

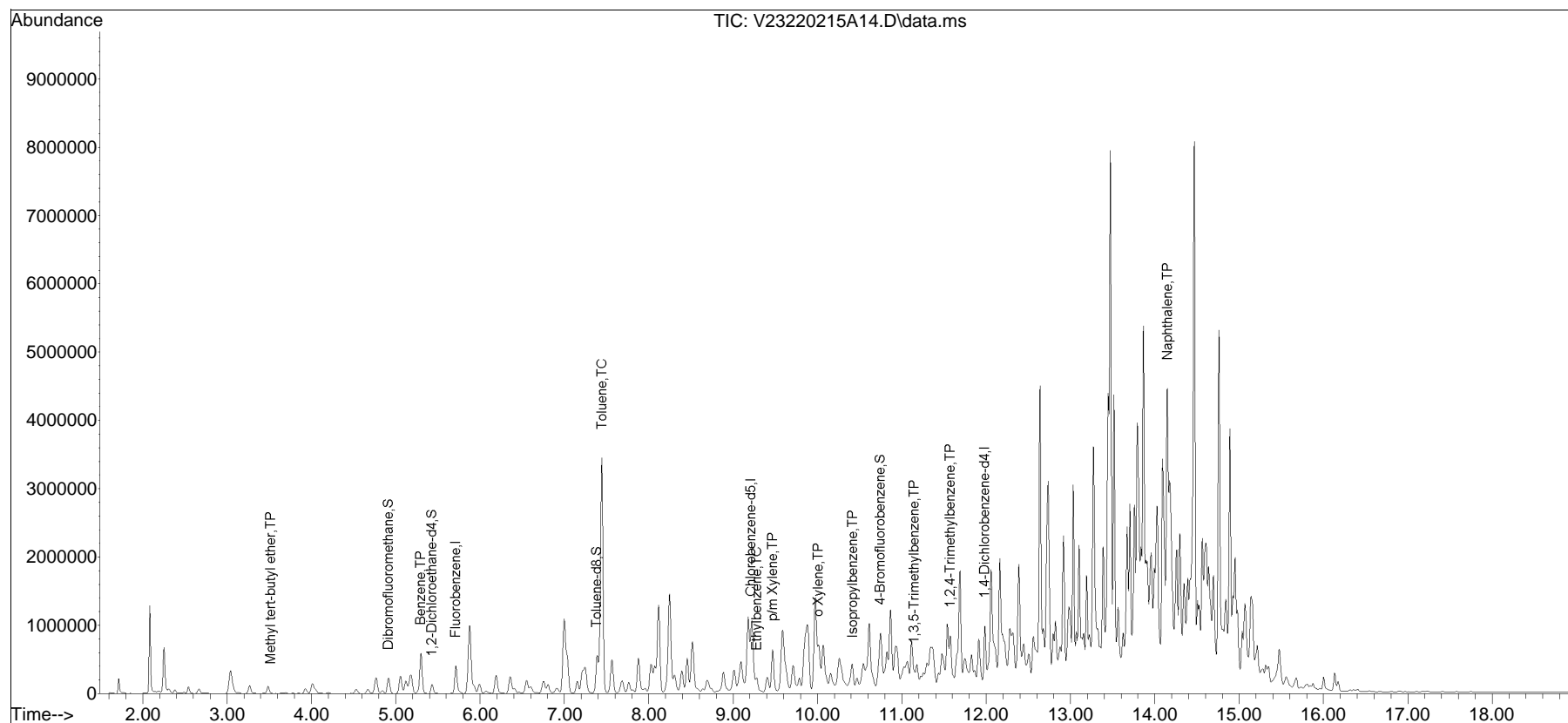
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A14.D
Acq On : 15 Feb 2022 04:41 pm
Operator : VOA123:KD
Sample : 12207184-01,31H,6.25,5,0.100,,a,r2f
Misc : WG1605547,ICAL18401
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 15 17:36:19 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•

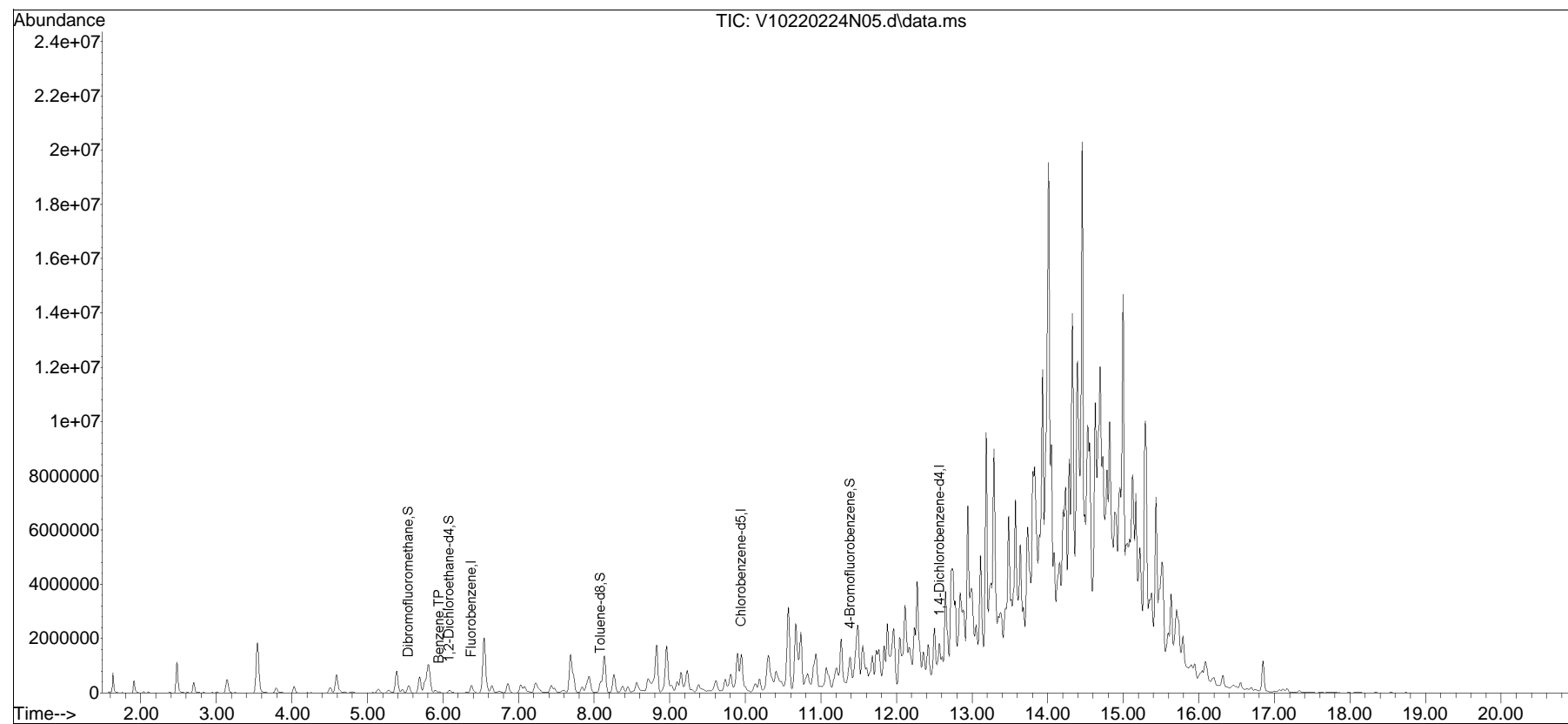


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220224N\
Data File : V10220224N05.d
Acq On : 24 Feb 2022 9:13 pm
Operator : VOA110:NLK
Sample : L2207184-04,31,6.23,5,,B,R2F
Misc : WG1609164,ICAL18690
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 24 21:34:55 2022
Quant Method : I:\VOLATILES\VOA110\2022\220224N\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220224N\V10220224N01.d•

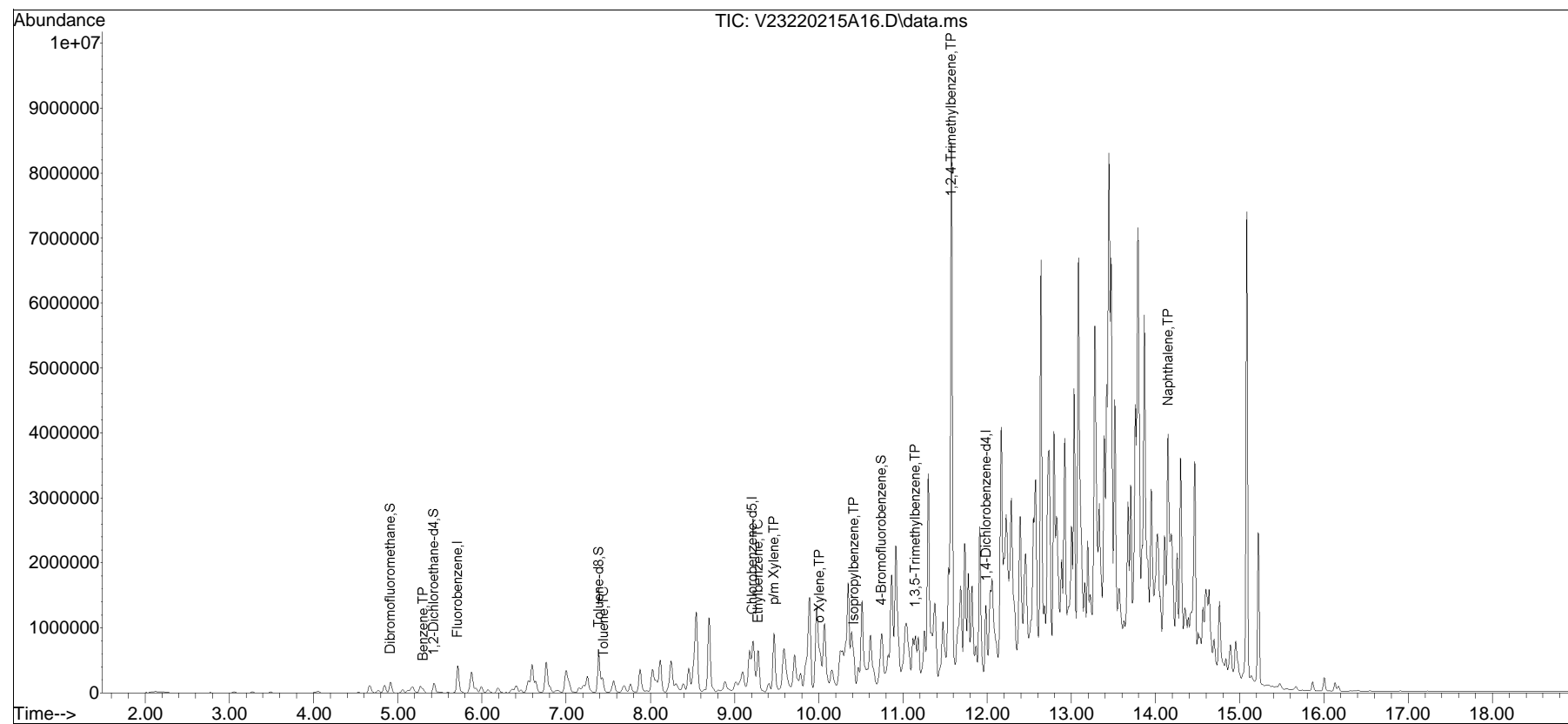


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A16.D
Acq On : 15 Feb 2022 05:31 pm
Operator : VOA123:KD
Sample : 12207184-06D,31H,5.10,5,0.040,,a,r2f
Misc : WG1605547,ICAL18401
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 15 18:16:26 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•





ANALYTICAL REPORT

Lab Number:	L2207185
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/17/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207185-01	PB-36-04-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:10	02/10/22
L2207185-02	PB-36-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:30	02/10/22
L2207185-03	PB-36-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:40	02/10/22
L2207185-04	PB-36-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:50	02/10/22
L2207185-05	PB-35-06-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:10	02/10/22
L2207185-06	PB-35-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:20	02/10/22
L2207185-07	PB-35-10-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:30	02/10/22
L2207185-08	PB-35-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:40	02/10/22
L2207185-09	PB-35-13-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:50	02/10/22
L2207185-10	PB-35-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 14:00	02/10/22
L2207185-11	FB-220210	WATER	PHILADELPHIA, PA	02/10/22 15:00	02/10/22
L2207185-12	TB-220210	WATER	PHILADELPHIA, PA	02/10/22 00:00	02/10/22
L2207185-13	DUP-26	SOIL	PHILADELPHIA, PA	02/10/22 00:00	02/10/22

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

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.

Volatile Organics

L2207185-02D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (188%); 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.

L2207185-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (156%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-04: 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.

L2207185-05: 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.

L2207185-06: 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.

L2207185-06 (Low): The surrogate recovery is outside the acceptance criteria for toluene-d8 (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.

L2207185-07 and -10: 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

Project Name: PES REFINERY-SOIL CHARACTERIZA
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Case Narrative (continued)

to vial discrepancies.

L2207185-07 (Low): The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard.

L2207185-07 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (134%) and 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.

L2207185-08: The internal standard (IS) response for fluorobenzene (257%) and the surrogate recovery for dibromofluoromethane (31%), toluene-d8 (332%) and 4-bromofluorobenzene (8050%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2207185-09: The internal standard (IS) response for fluorobenzene (451%) and the surrogate recoveries for 4-bromofluorobenzene (49%), dibromofluoromethane (19%), and toluene-d8 (492%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2207185-10 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (321%); 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.

L2207185-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (62%) due to interference with the Internal Standard.

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Case Narrative (continued)

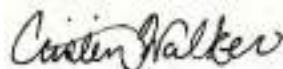
Total Metals

L2207185-06, -10, and -13: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG1604051-3 MS recovery, performed on L2207185-01, is outside the acceptance criteria for lead (139%). A post digestion spike was performed and was within acceptance criteria.

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: 02/17/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01
 Client ID: PB-36-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:10
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 12:13
 Analyst: MKS
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.59		mg/kg	0.13	0.013	1
Benzene	1.2		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.4		mg/kg	0.065	0.0091	1
p/m-Xylene	0.40		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.065	0.019	1
Xylenes, Total	0.52		mg/kg	0.065	0.019	1
Isopropylbenzene	0.58		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	6.1		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02 D2
 Client ID: PB-36-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 11:49
 Analyst: KD
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40		mg/kg	0.32	0.032	2.5
Benzene	35.		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	ND		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	12.		mg/kg	0.16	0.023	2.5
p/m-Xylene	14.		mg/kg	0.32	0.090	2.5
o-Xylene	0.87		mg/kg	0.16	0.047	2.5
Xylenes, Total	15.		mg/kg	0.16	0.047	2.5
Isopropylbenzene	5.7		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	29.		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	73.	E	mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	135	Q	70-130
4-Bromofluorobenzene	188	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02 D
 Client ID: PB-36-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 12:39
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	100		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03
 Client ID: PB-36-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 11:29
 Analyst: KD
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.030	J	mg/kg	0.12	0.012	1
Benzene	0.019	J	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	0.67		mg/kg	0.061	0.0086	1
p/m-Xylene	1.3		mg/kg	0.12	0.034	1
o-Xylene	0.031	J	mg/kg	0.061	0.018	1
Xylenes, Total	1.3	J	mg/kg	0.061	0.018	1
Isopropylbenzene	0.95		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	8.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	132	Q	70-130
4-Bromofluorobenzene	156	Q	70-130
Dibromofluoromethane	88		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03 D
 Client ID: PB-36-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 13:05
 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	19.		mg/kg	1.2	0.20	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

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Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04
 Client ID: PB-36-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 13:31
 Analyst: MKS
 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	0.14	0.014	1
Benzene	0.14		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.072		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	2.0		mg/kg	0.072	0.010	1
p/m-Xylene	1.5		mg/kg	0.14	0.040	1
o-Xylene	0.076		mg/kg	0.072	0.021	1
Xylenes, Total	1.6		mg/kg	0.072	0.021	1
Isopropylbenzene	0.16		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	1.7		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.83		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04
 Client ID: PB-36-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 12:10
 Analyst: KD
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0088		mg/kg	0.0018	0.00018	1
Benzene	0.12		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	0.014		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.67	E	mg/kg	0.00091	0.00013	1
p/m-Xylene	0.90	E	mg/kg	0.0018	0.00051	1
o-Xylene	0.022		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.41	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	83		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05
 Client ID: PB-35-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:10
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 13:57
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.082	J	mg/kg	0.16	0.016	1
Benzene	0.89		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.079	0.020	1
Toluene	0.070	J	mg/kg	0.079	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	1.8		mg/kg	0.079	0.011	1
p/m-Xylene	0.20		mg/kg	0.16	0.044	1
o-Xylene	0.037	J	mg/kg	0.079	0.023	1
Xylenes, Total	0.24	J	mg/kg	0.079	0.023	1
Isopropylbenzene	0.37		mg/kg	0.079	0.0086	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.095	J	mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06
 Client ID: PB-35-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:20
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 14:23
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.077	J	mg/kg	0.10	0.010	1
Benzene	0.31		mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.10		mg/kg	0.051	0.0072	1
p/m-Xylene	0.21		mg/kg	0.10	0.028	1
o-Xylene	0.14		mg/kg	0.051	0.015	1
Xylenes, Total	0.35		mg/kg	0.051	0.015	1
Isopropylbenzene	0.035	J	mg/kg	0.051	0.0055	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.10	0.0098	1
1,2,4-Trimethylbenzene	0.62		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06
 Client ID: PB-35-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:20
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 15:54
 Analyst: KJD
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.039		mg/kg	0.0020	0.00020	1
Benzene	0.14		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0097		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00057	1
o-Xylene	0.14		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.31		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.030		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.48	E	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	158	Q	70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
 Client ID: PB-35-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 14:48
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.035	J	mg/kg	0.14	0.014	1
Benzene	1.2		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	0.90		mg/kg	0.072	0.010	1
p/m-Xylene	0.096	J	mg/kg	0.14	0.040	1
o-Xylene	0.024	J	mg/kg	0.072	0.021	1
Xylenes, Total	0.12	J	mg/kg	0.072	0.021	1
Isopropylbenzene	0.30		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.090	J	mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
 Client ID: PB-35-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 15:34
 Analyst: KJD
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0028	0.00028	1
Benzene	0.20		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	0.010		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	0.15		mg/kg	0.0014	0.00019	1
p/m-Xylene	0.014		mg/kg	0.0028	0.00077	1
o-Xylene	0.0043		mg/kg	0.0014	0.00040	1
Xylenes, Total	0.018		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.050		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0028	0.00026	1
1,2,4-Trimethylbenzene	0.0095		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	134	Q	70-130
4-Bromofluorobenzene	145	Q	70-130
Dibromofluoromethane	63	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
 Client ID: PB-35-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 15:14
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.066	J	mg/kg	0.10	0.011	1
Benzene	0.73		mg/kg	0.026	0.0088	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	ND		mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.016	1
Ethylbenzene	0.15		mg/kg	0.053	0.0075	1
p/m-Xylene	ND		mg/kg	0.10	0.030	1
o-Xylene	ND		mg/kg	0.053	0.015	1
Xylenes, Total	ND		mg/kg	0.053	0.015	1
Isopropylbenzene	0.030	J	mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.052	J	mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
 Client ID: PB-35-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 15:13
 Analyst: KJD
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.034		mg/kg	0.0034	0.00034	1
Benzene	1.9	E	mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	0.64	E	mg/kg	0.0017	0.00093	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	3.1	E	mg/kg	0.0017	0.00024	1
p/m-Xylene	0.11		mg/kg	0.0034	0.00096	1
o-Xylene	0.19		mg/kg	0.0017	0.00050	1
Xylenes, Total	0.30		mg/kg	0.0017	0.00050	1
Isopropylbenzene	0.99	E	mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	0.0099		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	332	Q	70-130
4-Bromofluorobenzene	8050	Q	70-130
Dibromofluoromethane	31	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
 Client ID: PB-35-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 15:40
 Analyst: MKS
 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	0.89		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.074		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.0		mg/kg	0.058	0.0082	1
p/m-Xylene	0.31		mg/kg	0.12	0.033	1
o-Xylene	0.034	J	mg/kg	0.058	0.017	1
Xylenes, Total	0.34	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.29		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
 Client ID: PB-35-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 14:53
 Analyst: KJD
 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	0.0020	0.00021	1
Benzene	0.18		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.078		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	1.4	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00058	1
o-Xylene	0.032		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.20		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.46	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0081		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.083		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	492	Q	70-130
4-Bromofluorobenzene	49	Q	70-130
Dibromofluoromethane	19	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
 Client ID: PB-35-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 16:06
 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	0.13	0.013	1
Benzene	0.54		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	0.050	J	mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.037	J	mg/kg	0.066	0.0092	1
p/m-Xylene	0.052	J	mg/kg	0.13	0.037	1
o-Xylene	0.027	J	mg/kg	0.066	0.019	1
Xylenes, Total	0.079	J	mg/kg	0.066	0.019	1
Isopropylbenzene	0.24		mg/kg	0.066	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
 Client ID: PB-35-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 14:12
 Analyst: KJD
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00091	J	mg/kg	0.0010	0.00011	1
Benzene	0.089		mg/kg	0.00026	0.00008	1
1,2-Dichloroethane	ND		mg/kg	0.00053	0.00014	1
Toluene	0.0079		mg/kg	0.00053	0.00029	1
1,2-Dibromoethane	ND		mg/kg	0.00026	0.00016	1
Ethylbenzene	0.0030		mg/kg	0.00053	0.00007	1
p/m-Xylene	0.0064		mg/kg	0.0010	0.00030	1
o-Xylene	0.0037		mg/kg	0.00053	0.00015	1
Xylenes, Total	0.010		mg/kg	0.00053	0.00015	1
Isopropylbenzene	0.026		mg/kg	0.00053	0.00005	1
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0010	0.00010	1
1,2,4-Trimethylbenzene	0.00050	J	mg/kg	0.0010	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	166	Q	70-130
4-Bromofluorobenzene	321	Q	70-130
Dibromofluoromethane	62	Q	70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
 Client ID: FB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/14/22 14:35
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/14/22 10:52

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
 Client ID: FB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 14:24
 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	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-12
 Client ID: TB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/14/22 14:44
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/14/22 10:52

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-12
 Client ID: TB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/11/22 14:50
 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	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
 Client ID: DUP-26
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 17:57
 Analyst: KJD
 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	0.17	0.017	1
Benzene	2.6		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.086	0.022	1
Toluene	41.	E	mg/kg	0.086	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	19.		mg/kg	0.086	0.012	1
p/m-Xylene	84.	E	mg/kg	0.17	0.048	1
o-Xylene	25.		mg/kg	0.086	0.025	1
Isopropylbenzene	1.2		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	13.		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.17	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	80		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13 D
 Client ID: DUP-26
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 16:32
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	42.		mg/kg	0.86	0.46	10
p/m-Xylene	85.		mg/kg	1.7	0.48	10
Xylenes, Total	110		mg/kg	0.086	0.025	10
1,2,4-Trimethylbenzene	37.		mg/kg	1.7	0.29	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/14/22 13:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 11-12 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 11-12 Batch: WG1604746-5					
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	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/14/22 10:55
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-10,13 Batch: WG1605183-5					
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	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06-10 Batch: WG1605212-5					
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13 Batch: WG1605520-5					
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1606083-5					
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	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03 Batch: WG1606084-5					
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	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 11-12 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 11-12 Batch: WG1604746-3 WG1604746-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	105		100		70-130	5		20
Isopropylbenzene	110		100		70-130	10		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	105		107		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	101		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1605183-3 WG1605183-4								
Methyl tert butyl ether	90		88		66-130	2		30
Benzene	97		94		70-130	3		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	98		94		70-130	4		30
1,2-Dibromoethane	96		92		70-130	4		30
Ethylbenzene	96		94		70-130	2		30
p/m-Xylene	102		99		70-130	3		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	99		96		70-130	3		30
1,3,5-Trimethylbenzene	98		94		70-130	4		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	100		100		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06-10 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1606083-3 WG1606083-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		92		70-130
Dibromofluoromethane	99		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03 Batch: WG1606084-3 WG1606084-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	99		97		70-130



SEMIVOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01
 Client ID: PB-36-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:10
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 11:07
 Analyst: JG
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	4.9		mg/kg	0.20	0.025	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02
 Client ID: PB-36-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 12:15
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	4.7		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	164	Q	23-120
2-Fluorobiphenyl	38		30-120
4-Terphenyl-d14	43		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03
 Client ID: PB-36-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 12:38
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	1.4		mg/kg	0.20	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04
 Client ID: PB-36-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 13:00
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.073	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05
 Client ID: PB-35-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:10
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 13:23
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.48		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	66		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06
 Client ID: PB-35-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:20
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 13:45
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.9		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	67		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
 Client ID: PB-35-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 14:30
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

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	100		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	60		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
 Client ID: PB-35-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 14:53
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.62		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	282	Q	23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	59		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
 Client ID: PB-35-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 15:16
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.9		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
 Client ID: PB-35-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 15:38
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
 Client ID: FB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/17/22 14:12
 Analyst: DV

Extraction Method: EPA 3510C
 Extraction Date: 02/17/22 01:51

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	88		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	87		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
 Client ID: DUP-26
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/15/22 16:01
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/14/22 23:26

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	99		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	62		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/15/22 10:00
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,13 Batch: WG1604892-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	63		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/17/22 13:53
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 02/17/22 01:51

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 11 Batch: WG1605880-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	78		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1604892-2 WG1604892-3								
Naphthalene	61		69		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		100		23-120
2-Fluorobiphenyl	65		72		30-120
4-Terphenyl-d14	70		80		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 11 Batch: WG1605880-2 WG1605880-3								
Naphthalene	80		77		40-140	4		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		80		23-120
2-Fluorobiphenyl	80		75		15-120
4-Terphenyl-d14	82		75		41-149



METALS



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01
 Client ID: PB-36-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:10
 Date Received: 02/10/22
 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	13.3		mg/kg	4.90	0.263	2	02/14/22 17:26	02/16/22 12:27	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02

Date Collected: 02/10/22 12:30

Client ID: PB-36-09-SS01

Date Received: 02/10/22

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	9.84		mg/kg	2.32	0.124	1	02/14/22 17:26	02/16/22 14:50	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03

Date Collected: 02/10/22 12:40

Client ID: PB-36-11-SS01

Date Received: 02/10/22

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	8.57		mg/kg	2.36	0.126	1	02/14/22 17:26	02/16/22 14:55	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**SAMPLE RESULTS**

Lab ID: L2207185-04

Date Collected: 02/10/22 12:50

Client ID: PB-36-14-SS01

Date Received: 02/10/22

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	218		mg/kg	2.22	0.119	1	02/14/22 17:26	02/16/22 14:59	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**SAMPLE RESULTS**

Lab ID: L2207185-05

Date Collected: 02/10/22 13:10

Client ID: PB-35-06-SS01

Date Received: 02/10/22

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	79.2		mg/kg	2.31	0.124	1	02/14/22 17:26	02/16/22 15:04	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06

Date Collected: 02/10/22 13:20

Client ID: PB-35-09-SS01

Date Received: 02/10/22

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	1520		mg/kg	11.5	0.615	5	02/14/22 17:26	02/16/22 19:22	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
 Client ID: PB-35-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
 Date Received: 02/10/22
 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	57.6		mg/kg	2.33	0.125	1	02/14/22 17:26	02/16/22 15:14	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
 Client ID: PB-35-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
 Date Received: 02/10/22
 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	173		mg/kg	2.29	0.123	1	02/14/22 17:26	02/16/22 15:18	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
 Client ID: PB-35-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
 Date Received: 02/10/22
 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	63.2		mg/kg	2.27	0.122	1	02/14/22 17:26	02/16/22 15:23	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
 Client ID: PB-35-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:00
 Date Received: 02/10/22
 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	7.51	J	mg/kg	11.6	0.621	5	02/14/22 17:26	02/16/22 19:27	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
 Client ID: FB-220210
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
 Date Received: 02/10/22
 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	02/15/22 06:20	02/15/22 13:32	EPA 3005A	1,6020B	SV



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
 Client ID: DUP-26
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
 Date Received: 02/10/22
 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	1500		mg/kg	11.5	0.618	5	02/14/22 17:26	02/16/22 19:32	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

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): 01-10,13 Batch: WG1604051-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/14/22 17:26	02/16/22 11:07	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): 11 Batch: WG1604932-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 Batch: WG1604051-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 11 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MS Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-3 QC Sample: L2207185-01 Client ID: PB-36-04-SS01												
Lead, Total	13.3	51.4	84.7	139	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2207185

Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-4 QC Sample: L2207185-01 Client ID: PB-36-04-SS01						
Lead, Total	13.3	14.0	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01
Client ID: PB-36-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:10
Date Received: 02/10/22
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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02
 Client ID: PB-36-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
 Date Received: 02/10/22
 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	81.5		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03
 Client ID: PB-36-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:40
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04
 Client ID: PB-36-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:50
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05
 Client ID: PB-35-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:10
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06
 Client ID: PB-35-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:20
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
Client ID: PB-35-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
Date Received: 02/10/22
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	84.6		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
Client ID: PB-35-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
Date Received: 02/10/22
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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
Client ID: PB-35-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
Date Received: 02/10/22
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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
 Client ID: PB-35-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:00
 Date Received: 02/10/22
 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	-	02/11/22 08:24	121,2540G	RI



Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
Client ID: DUP-26
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
Date Received: 02/10/22
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	85.1		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI



Lab Duplicate Analysis*Batch Quality Control***Project Name:** PES REFINERY-SOIL CHARACTERIZA**Project Number:** 200.00135.005.03**Lab Number:** L2207185**Report Date:** 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-10,13 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: DUP Sample						
Solids, Total	80.4	82.4	%	2		20

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-01A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-01B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-01F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-02A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-02B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-02F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-03A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-03B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-03F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-04A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-04B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-04E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-04F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-05A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-05B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-05F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-06B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-06F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-07A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-07B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-07F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-08A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-08B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-08F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)

Project Name: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-09F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-10F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-11A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11F	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2207185-11G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-11H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-12A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-12B	Vial HCl preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-13B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-13F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

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.

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: PES REFINERY-SOIL CHARACTERIZA**Lab Number:** L2207185**Project Number:** 200.00135.005.03**Report Date:** 02/17/22**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: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
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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-Terpeneol

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-Terpeneol; 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 List:

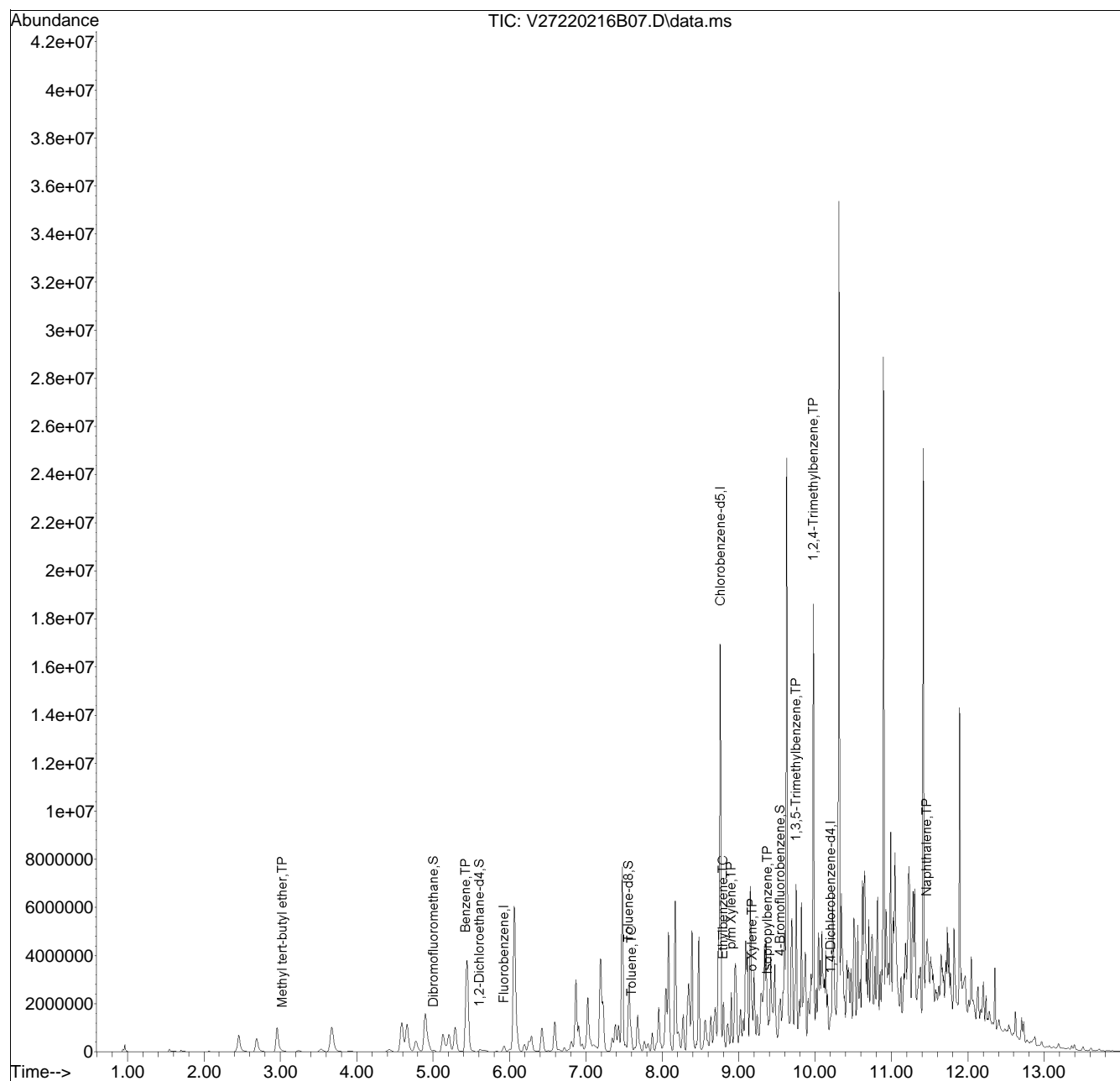
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl 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-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
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\VOA127\2022\220216B\
 Data File : V27220216B07.D
 Acq On : 16 Feb 2022 11:49 am
 Operator : VOA127:KD
 Sample : 12207185-02D2,31H,5.79,5,0.040,,a,r2f
 Misc : WG1606084,ICAL18638
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 16 15:22:48 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•

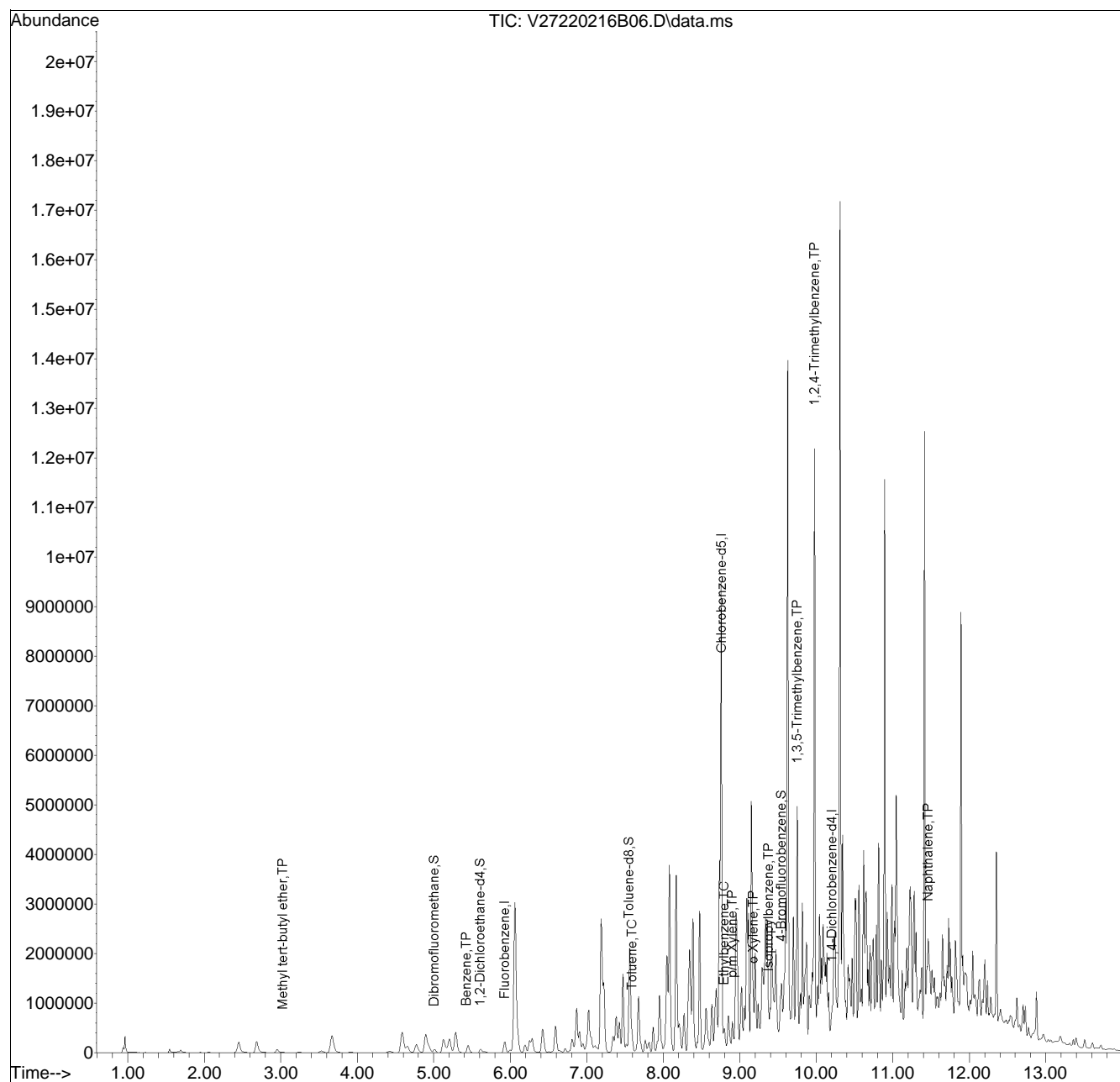


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220216B\
 Data File : V27220216B06.D
 Acq On : 16 Feb 2022 11:29 am
 Operator : VOA127:KD
 Sample : 12207185-03,31H,5.96,5,0.100,,a,r2f
 Misc : WG1606084,ICAL18638
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 17 11:39:46 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•

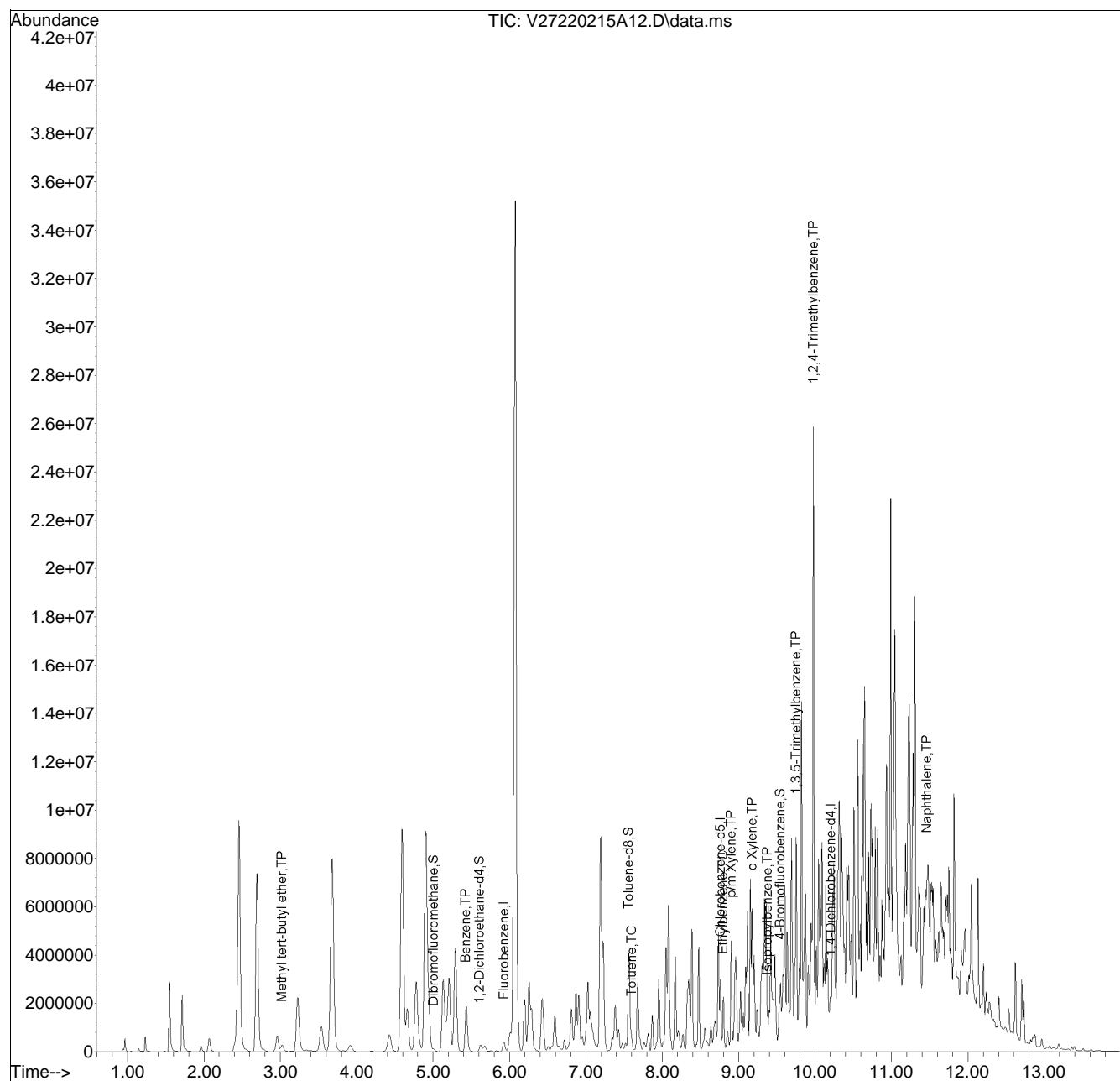


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A12.D
Acq On : 15 Feb 2022 03:54 pm
Operator : VOA127:KJD
Sample : 12207185-06,31,5.95,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Feb 15 20:53:06 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

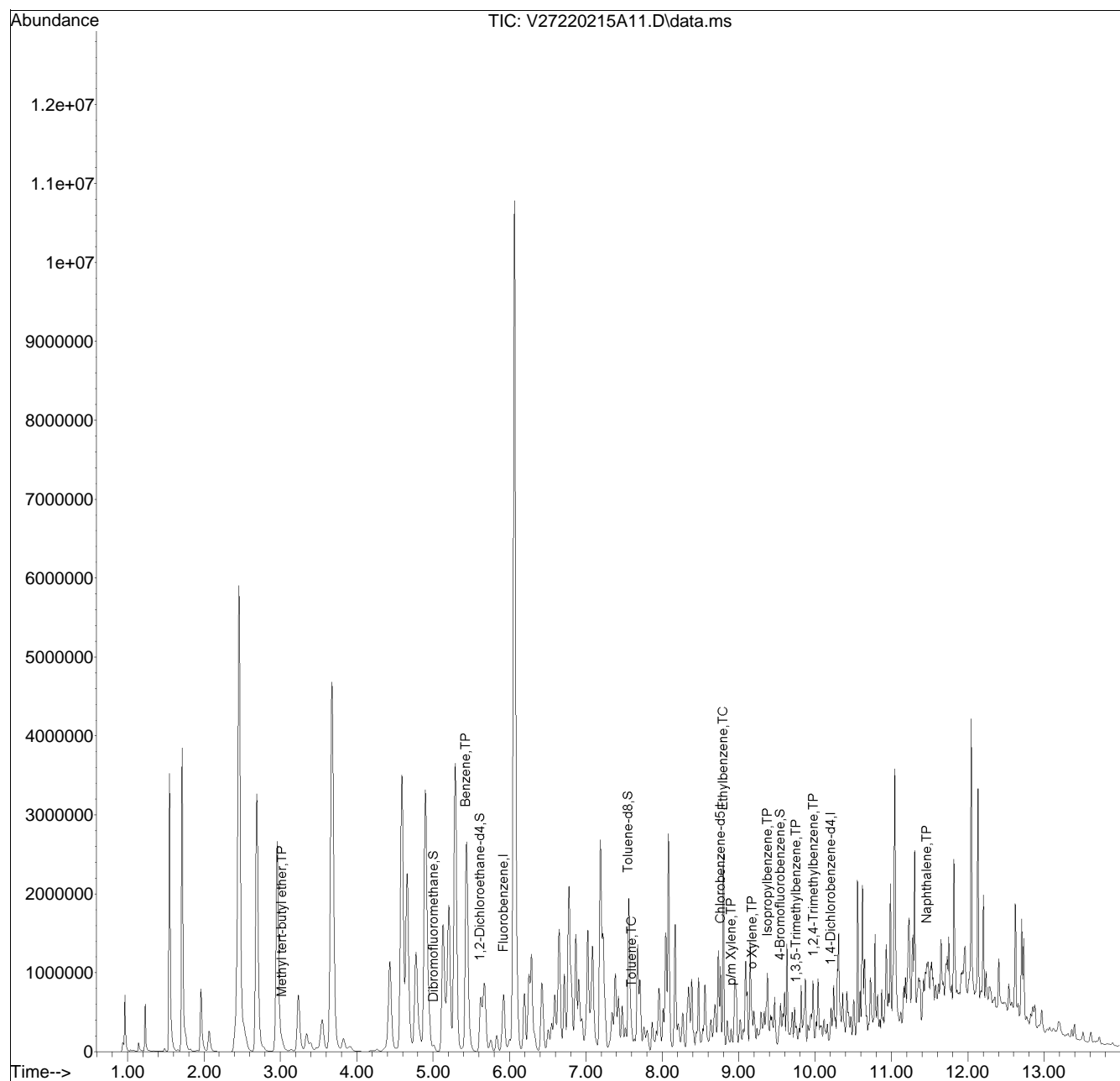


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A11.D
Acq On : 15 Feb 2022 03:34 pm
Operator : VOA127:KJD
Sample : 12207185-07,31,4.29,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 15 20:51:48 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

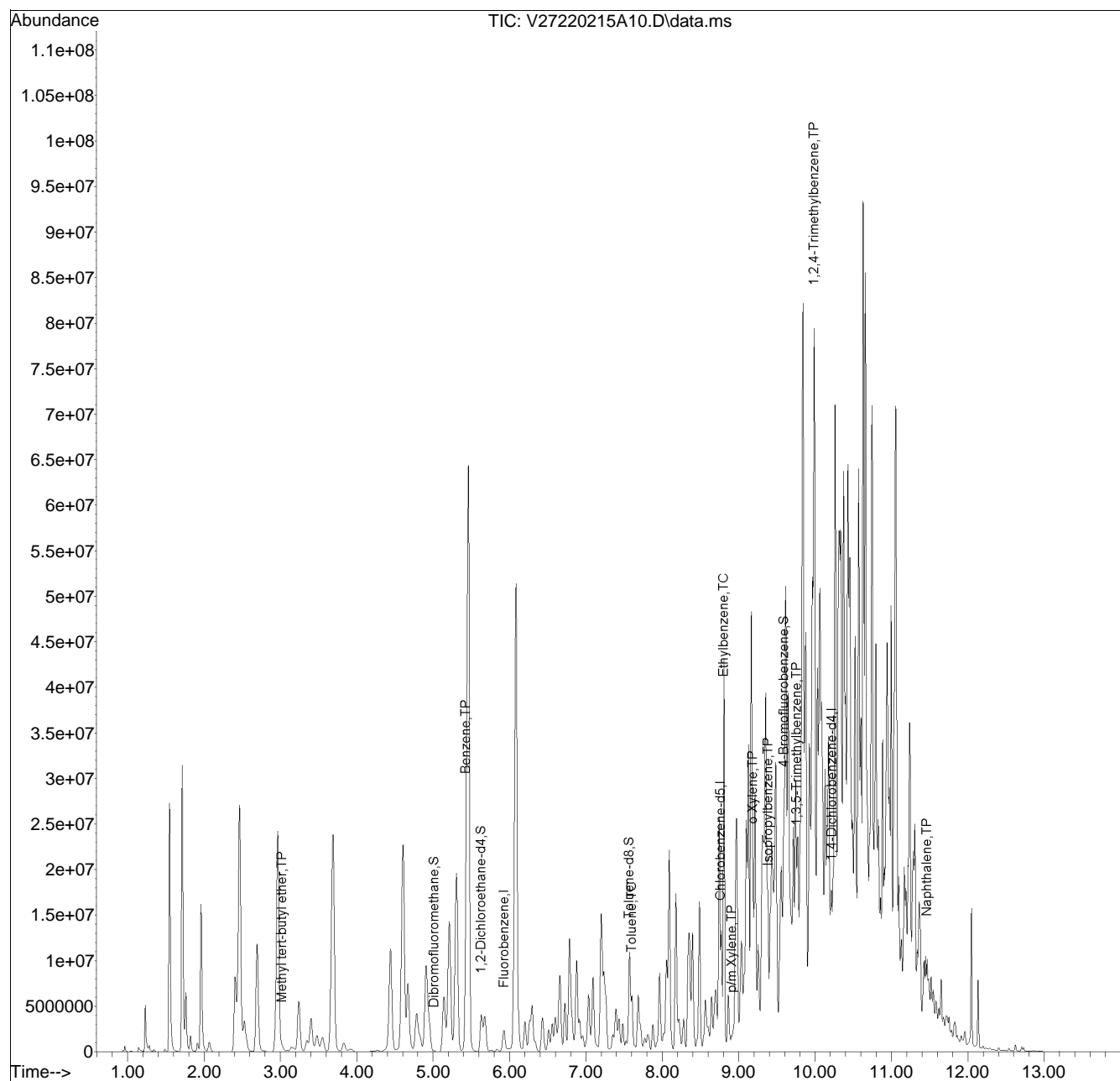


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
 Data File : V27220215A10.D
 Acq On : 15 Feb 2022 03:13 pm
 Operator : VOA127:KJD
 Sample : 12207185-08,31,3.45,5,,b,r2f
 Misc : WG1605212,ICAL18638
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 15 20:50:52 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

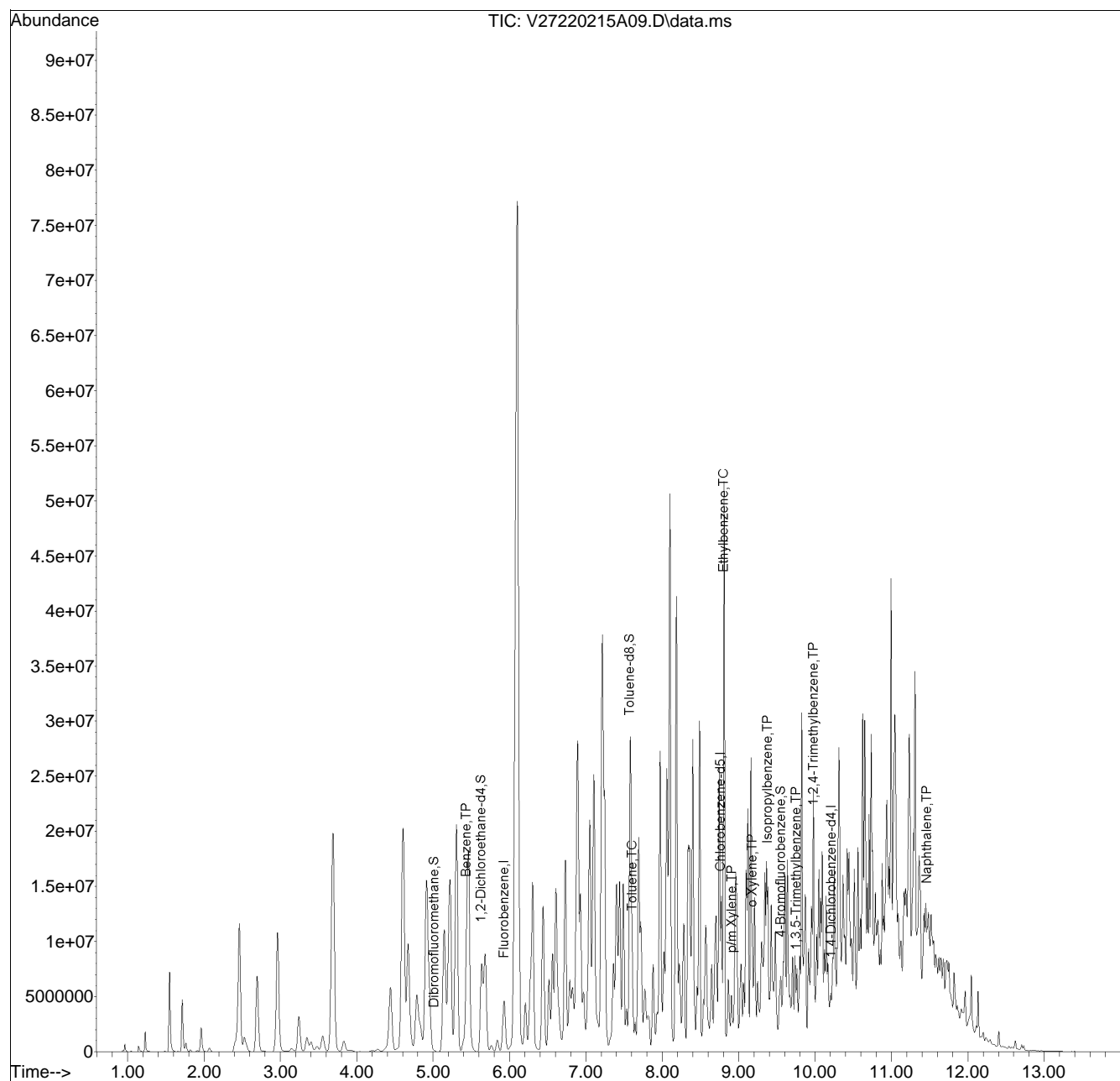


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
 Data File : V27220215A09.D
 Acq On : 15 Feb 2022 02:53 pm
 Operator : VOA127:KJD
 Sample : 12207185-09,31,5.72,5,,b,r2f
 Misc : WG1605212,ICAL18638
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 15 20:48:19 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

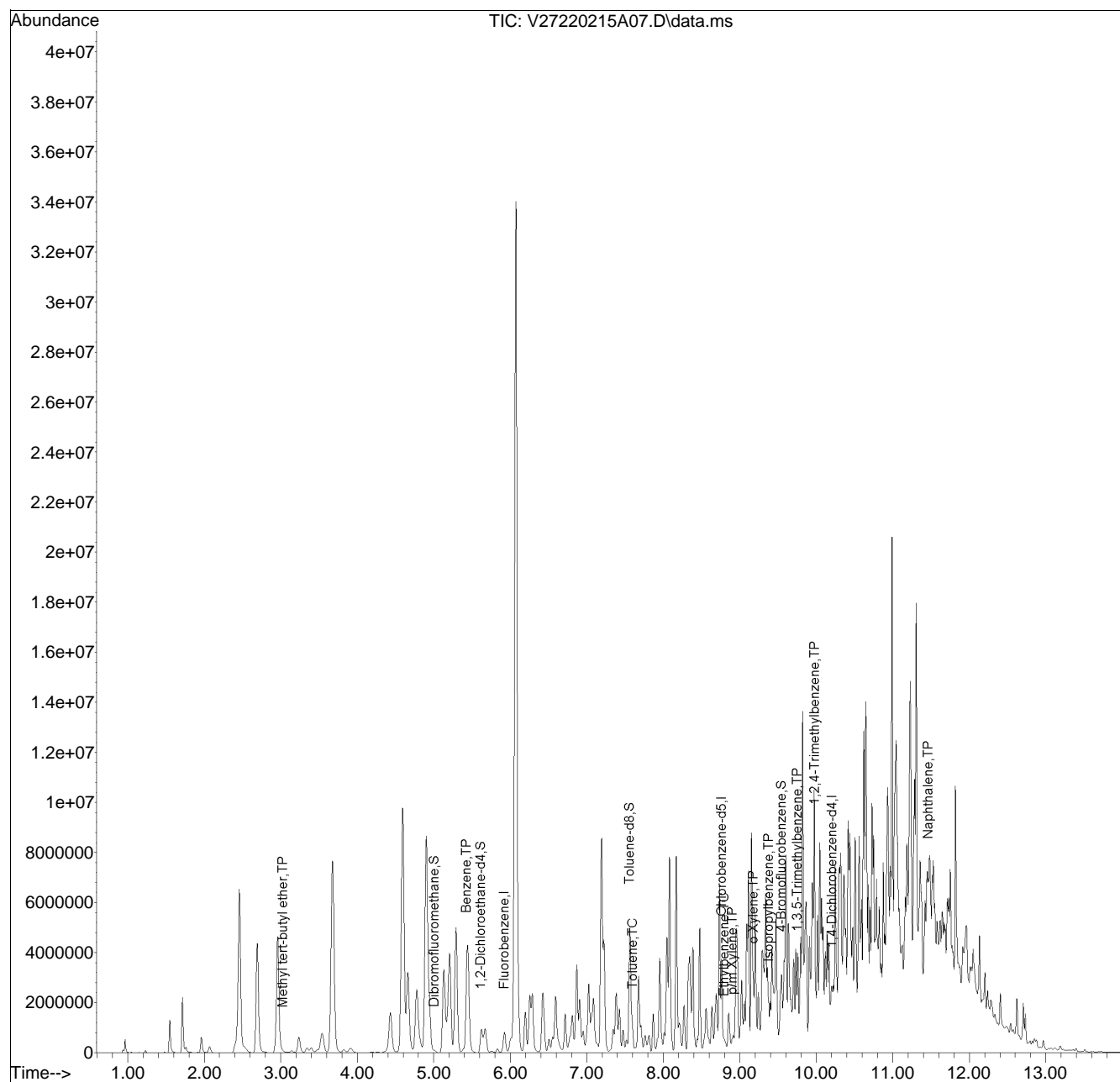


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
 Data File : V27220215A07.D
 Acq On : 15 Feb 2022 02:12 pm
 Operator : VOA127:KJD
 Sample : 12207185-10,31,11.40,5,,b,r2f
 Misc : WG1605212,ICAL18638
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 15 14:33:01 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•





ANALYTICAL REPORT

Lab Number:	L2207566
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	02/25/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207566-01	PB-40-12R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 09:45	02/11/22
L2207566-02	PB-40-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 09:55	02/11/22
L2207566-03	PB-40-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:00	02/11/22
L2207566-04	PB-34-03R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 10:30	02/11/22
L2207566-05	PB-34-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 10:40	02/11/22
L2207566-06	PB-34-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:50	02/11/22
L2207566-07	PB-34-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 11:20	02/11/22
L2207566-08	PB-34-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 11:30	02/11/22

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Case Narrative (continued)

Report Submission

February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207566-08.

February 18, 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

L2207566-02: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (146%); 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.

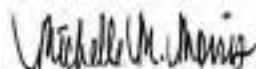
Total Metals

L2207566-02: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

The WG1605224-3 MS recovery, performed on L2207566-01, is outside the acceptance criteria for lead (63%). A post digestion spike was performed and yielded an unacceptable recovery for lead (60%). 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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 02/25/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-02
 Client ID: PB-40-12R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 09:55
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 23:07
 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	0.0037		mg/kg	0.00049	0.00016	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	139	Q	70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-07
 Client ID: PB-34-11R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:20
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 22:17
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.4		mg/kg	0.039	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-08 D
 Client ID: PB-34-11R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:30
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/23/22 17:41
 Analyst: AJK
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	180		mg/kg	1.5	0.49	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07 Batch: WG1606450-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1606451-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 09:21
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608829-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	89		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07 Batch: WG1606450-3 WG1606450-4								
Benzene	85		84		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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: WG1606451-3 WG1606451-4								
Benzene	85		84		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207566

Project Number: 200.00135.005.03

Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608829-3 WG1608829-4								
Benzene	87		74		70-130	16		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		78		70-130
Toluene-d8	104		97		70-130
4-Bromofluorobenzene	94		80		70-130
Dibromofluoromethane	91		95		70-130

METALS



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-01
 Client ID: PB-40-12R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 09:45
 Date Received: 02/11/22
 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	7.08		mg/kg	2.47	0.132	1	02/15/22 20:00	02/17/22 09:56	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207566**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**SAMPLE RESULTS**

Lab ID: L2207566-02

Date Collected: 02/11/22 09:55

Client ID: PB-40-12R-6.0-6.5

Date Received: 02/11/22

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	31.2		mg/kg	11.5	0.618	5	02/15/22 20:00	02/18/22 13:31	EPA 3050B	1,6010D	GD



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207566

Project Number: 200.00135.005.03

Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-04

Date Collected: 02/11/22 10:30

Client ID: PB-34-03R-0.0-0.5

Date Received: 02/11/22

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	488		mg/kg	12.7	0.680	5	02/15/22 20:00	02/17/22 19:25	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207566

Project Number: 200.00135.005.03

Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-05

Date Collected: 02/11/22 10:40

Client ID: PB-34-03R-6.0-6.5

Date Received: 02/11/22

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	47.2		mg/kg	2.28	0.122	1	02/15/22 20:00	02/17/22 19:11	EPA 3050B	1,6010D	DL



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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): 01-02,04-05 Batch: WG1605224-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5												
Lead, Total	7.08	51.4	39.5	63	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207566

Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5						
Lead, Total	7.08	7.13	mg/kg	1		20

INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-01
Client ID: PB-40-12R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 09:45
Date Received: 02/11/22
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	79.1		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-02
 Client ID: PB-40-12R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 09:55
 Date Received: 02/11/22
 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	84.6		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-04
 Client ID: PB-34-03R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 10:30
 Date Received: 02/11/22
 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	78.2		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-05
Client ID: PB-34-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 10:40
Date Received: 02/11/22
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	-	02/12/22 08:41	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-07
 Client ID: PB-34-11R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:20
 Date Received: 02/11/22
 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	-	02/12/22 08:41	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-08
Client ID: PB-34-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:30
Date Received: 02/11/22
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	85.9		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207566

Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07 QC Batch ID: WG1604273-1 QC Sample: L2207568-01 Client ID: DUP Sample						
Solids, Total	84.8	85.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 08 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207566**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-01A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-01B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207566-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-04B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-05A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-05B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-06A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-06B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-07A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-07B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-08A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Serial_No:02252212:40

Lab Number: L2207566

Report Date: 02/25/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-08B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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.

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

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-Terpeneol

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-Terpeneol; 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

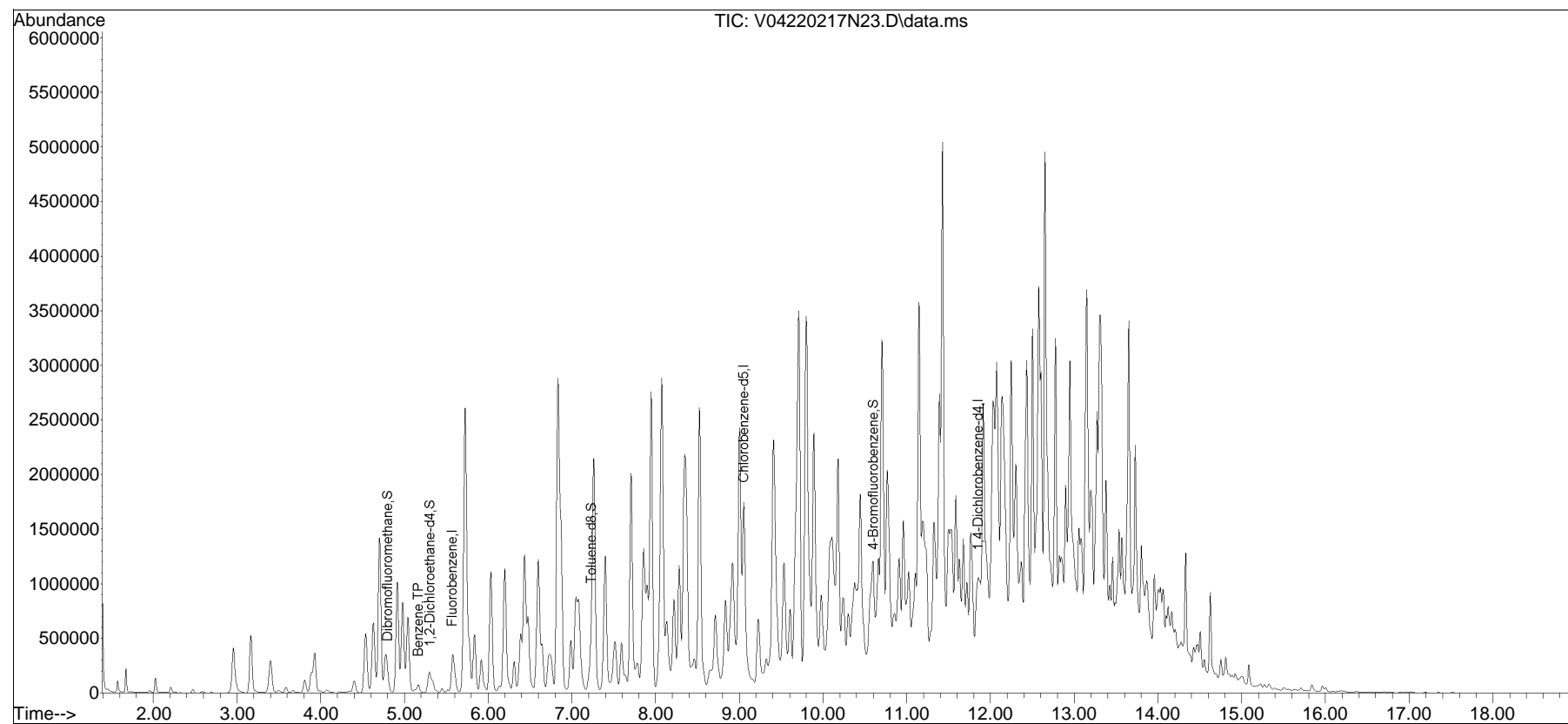
For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220217N\
Data File : V04220217N23.D
Acq On : 17 Feb 2022 11:07 pm
Operator : VOA104:AJK
Sample : L2207566-02,31,6.06,5,,B,R2F
Misc : WG1606451,ICAL18563
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 18 00:01:35 2022
Quant Method : I:\VOLATILES\VOA104\2022\220217N\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-Benzene - benzene only2\220217N\V04220217N01.D•





ANALYTICAL REPORT

Lab Number:	L2207567
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/18/22

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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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207567-01	PB-34-04-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:40	02/11/22
L2207567-02	PB-34-08-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:45	02/11/22
L2207567-03	PB-34-09-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:50	02/11/22
L2207567-04	PB-34-10-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:55	02/11/22
L2207567-05	PB-34-13-SS01	SOIL	PHILADELPHIA, PA	02/11/22 12:00	02/11/22
L2207567-06	FB-220211	WATER	PHILADELPHIA, PA	02/11/22 12:10	02/11/22
L2207567-07	TB-220211	WATER	PHILADELPHIA, PA	02/11/22 00:00	02/11/22

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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.

Volatile Organics

L2207567-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); 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.

L2207567-01D, -02D, and -04D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2207567-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); 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.

L2207567-03: 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.

L2207567-03: 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.

L2207567-04D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (162%); 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

L2207567-03 through -05: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

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:



Sebastian Corbin

Title: Technical Director/Representative

Date: 02/18/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01 D
 Client ID: PB-34-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:40
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 19:39
 Analyst: KJD
 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	0.23	0.023	2
Benzene	0.39		mg/kg	0.057	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.062	2
1,2-Dibromoethane	ND		mg/kg	0.057	0.033	2
Ethylbenzene	0.033	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.23	0.063	2
o-Xylene	ND		mg/kg	0.11	0.033	2
Xylenes, Total	ND		mg/kg	0.11	0.033	2
Isopropylbenzene	0.99		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.23	0.022	2
1,2,4-Trimethylbenzene	0.063	J	mg/kg	0.23	0.038	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	136	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02 D
 Client ID: PB-34-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:45
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 20:00
 Analyst: KJD
 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	0.26	0.026	2
Benzene	ND		mg/kg	0.065	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.071	2
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	2
Ethylbenzene	0.042	J	mg/kg	0.13	0.018	2
p/m-Xylene	ND		mg/kg	0.26	0.073	2
o-Xylene	ND		mg/kg	0.13	0.038	2
Xylenes, Total	ND		mg/kg	0.13	0.038	2
Isopropylbenzene	2.8		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	171	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
 Client ID: PB-34-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:50
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 20:20
 Analyst: MKS
 Percent Solids: 76%

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	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.011	J	mg/kg	0.066	0.0093	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	ND		mg/kg	0.066	0.019	1
Isopropylbenzene	0.079		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	104		70-130



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04 D
 Client ID: PB-34-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:55
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 20:41
 Analyst: MKS
 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	0.60	0.060	5
Benzene	ND		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	ND		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	0.048	J	mg/kg	0.30	0.042	5
p/m-Xylene	ND		mg/kg	0.60	0.17	5
o-Xylene	ND		mg/kg	0.30	0.087	5
Xylenes, Total	ND		mg/kg	0.30	0.087	5
Isopropylbenzene	0.089	J	mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.60	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	162	Q	70-130
Dibromofluoromethane	86		70-130



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
 Client ID: PB-34-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:00
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 20:43
 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	0.0013	J	mg/kg	0.0018	0.00018	1
Benzene	0.016		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0039		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.042		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.020		mg/kg	0.0018	0.00050	1
o-Xylene	0.010		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.030		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
 Client ID: FB-220211
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:10
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/14/22 16:26
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/14/22 10:52

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
 Client ID: FB-220211
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:10
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 14:10
 Analyst: AJK

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	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
 Client ID: TB-220211
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/14/22 16:35
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/14/22 10:52

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
 Client ID: TB-220211
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/14/22 14:33
 Analyst: AJK

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	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/14/22 13:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 06-07 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/14/22 11:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605324-5					
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	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-04 Batch: WG1605520-5					
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/16/22 12:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1606097-5					
Methyl tert butyl ether	0.00020	J	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	115		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 06-07 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605324-3 WG1605324-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		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	100		100		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	96		98		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-04 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1606097-3 WG1606097-4								
Methyl tert butyl ether	78		78		66-130	0		30
Benzene	80		80		70-130	0		30
1,2-Dichloroethane	94		95		70-130	1		30
Toluene	82		82		70-130	0		30
1,2-Dibromoethane	92		93		70-130	1		30
Ethylbenzene	83		84		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	87		88		70-130	1		30
Isopropylbenzene	95		96		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	92		91		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	104		105		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	99		99		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01
 Client ID: PB-34-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:40
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 07:14
 Analyst: IM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	58		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
 Client ID: PB-34-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:45
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 08:51
 Analyst: IM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 18:39

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	50		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	66		18-120



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
 Client ID: PB-34-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:50
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 06:50
 Analyst: IM
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04
 Client ID: PB-34-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:55
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 03:10
 Analyst: IM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.048	J	mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
 Client ID: PB-34-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:00
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/18/22 09:16
 Analyst: IM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.29		mg/kg	0.19	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	143	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
 Client ID: FB-220211
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:10
 Date Received: 02/11/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/18/22 14:03
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 02/17/22 18:52

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	70		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	74		41-149

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/17/22 13:34
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 02/16/22 22:53

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/18/22 13:44
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/17/22 18:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606288-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	84		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140		11	50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606288-2 WG1606288-3								
Naphthalene	76		92		40-140	19		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	80		98		23-120
2-Fluorobiphenyl	77		96		15-120
4-Terphenyl-d14	82		99		41-149



METALS



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01

Date Collected: 02/11/22 11:40

Client ID: PB-34-04-SS01

Date Received: 02/11/22

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	8.00		mg/kg	2.41	0.129	1	02/15/22 20:00	02/17/22 19:16	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02

Date Collected: 02/11/22 11:45

Client ID: PB-34-08-SS01

Date Received: 02/11/22

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	5.27		mg/kg	2.34	0.126	1	02/15/22 20:00	02/17/22 19:20	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03

Date Collected: 02/11/22 11:50

Client ID: PB-34-09-SS01

Date Received: 02/11/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.87	J	mg/kg	12.6	0.674	5	02/15/22 20:00	02/17/22 21:12	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04

Date Collected: 02/11/22 11:55

Client ID: PB-34-10-SS01

Date Received: 02/11/22

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	8.27	J	mg/kg	11.3	0.604	5	02/15/22 20:00	02/17/22 21:17	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05

Date Collected: 02/11/22 12:00

Client ID: PB-34-13-SS01

Date Received: 02/11/22

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	44.3		mg/kg	10.9	0.586	5	02/15/22 20:00	02/17/22 21:22	EPA 3050B	1,6010D	DL



Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06

Date Collected: 02/11/22 12:10

Client ID: FB-220211

Date Received: 02/11/22

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	0.6813	J	ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 13:37	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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): 06 Batch: WG1604932-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

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 Batch: WG1605224-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis**Batch Quality Control****Project Name:** PHILADELPHIA REFINERY SOIL CHA**Lab Number:** L2207567**Project Number:** 200.00135.005.03**Report Date:** 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: MS Sample												
Lead, Total	7.08	51.4	39.5	63	Q	-	-		75-125	-		20



Lab Duplicate Analysis *Batch Quality Control*

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: DUP Sample						
Lead, Total	7.08	7.13	mg/kg	1		20



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01
 Client ID: PB-34-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:40
 Date Received: 02/11/22
 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	-	02/12/22 08:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
Client ID: PB-34-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:45
Date Received: 02/11/22
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	-	02/12/22 08:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
Client ID: PB-34-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:50
Date Received: 02/11/22
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	76.1		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04
Client ID: PB-34-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:55
Date Received: 02/11/22
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	84.3		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI



Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Client ID: PB-34-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:00
Date Received: 02/11/22
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	86.8		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1604272-1 QC Sample: L2207458-01 Client ID: DUP Sample						
Solids, Total	92.6	91.7	%	1		20

Project Name: PHILADELPHIA REFINERY SOIL CHA**Lab Number:** L2207567**Project Number:** 200.00135.005.03**Report Date:** 02/18/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207567-01A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-01B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-01E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-04A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-04B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-04E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-05A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-05B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-05C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY SOIL CHA**Lab Number:** L2207567**Project Number:** 200.00135.005.03**Report Date:** 02/18/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207567-05D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-05E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-06A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06C	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06E	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06F	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06G	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06H	Plastic 250ml HNO3 preserved	C	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2207567-07A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07C	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-07D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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.

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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 SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

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-Terpeneol

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-Terpeneol; 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 List:

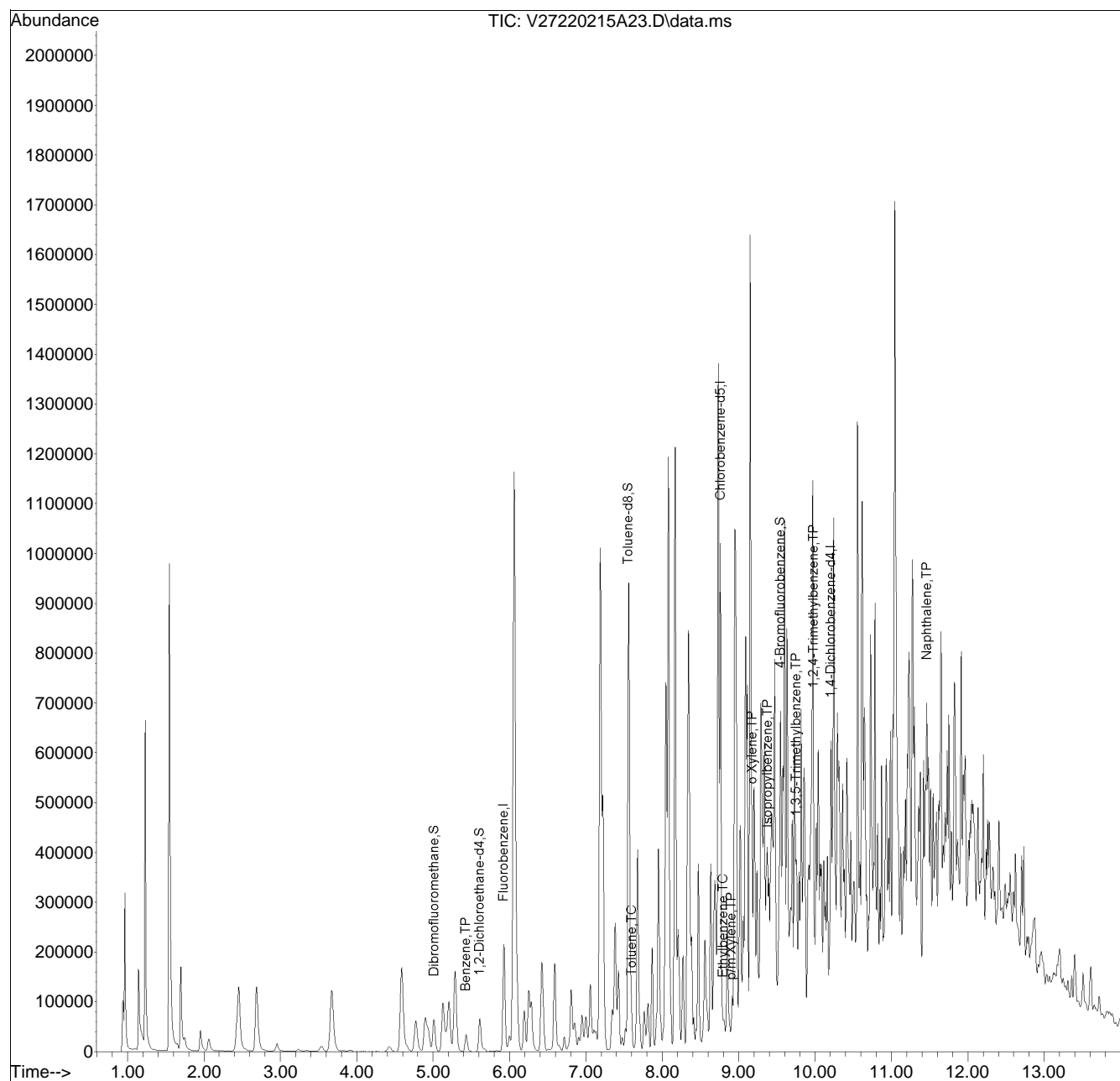
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel – benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl 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-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
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\VOA127\2022\220215A\
Data File : V27220215A23.D
Acq On : 15 Feb 2022 07:39 pm
Operator : VOA127:KJD
Sample : 12207567-01D,31H,6.60,5,0.050,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 15 21:09:50 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

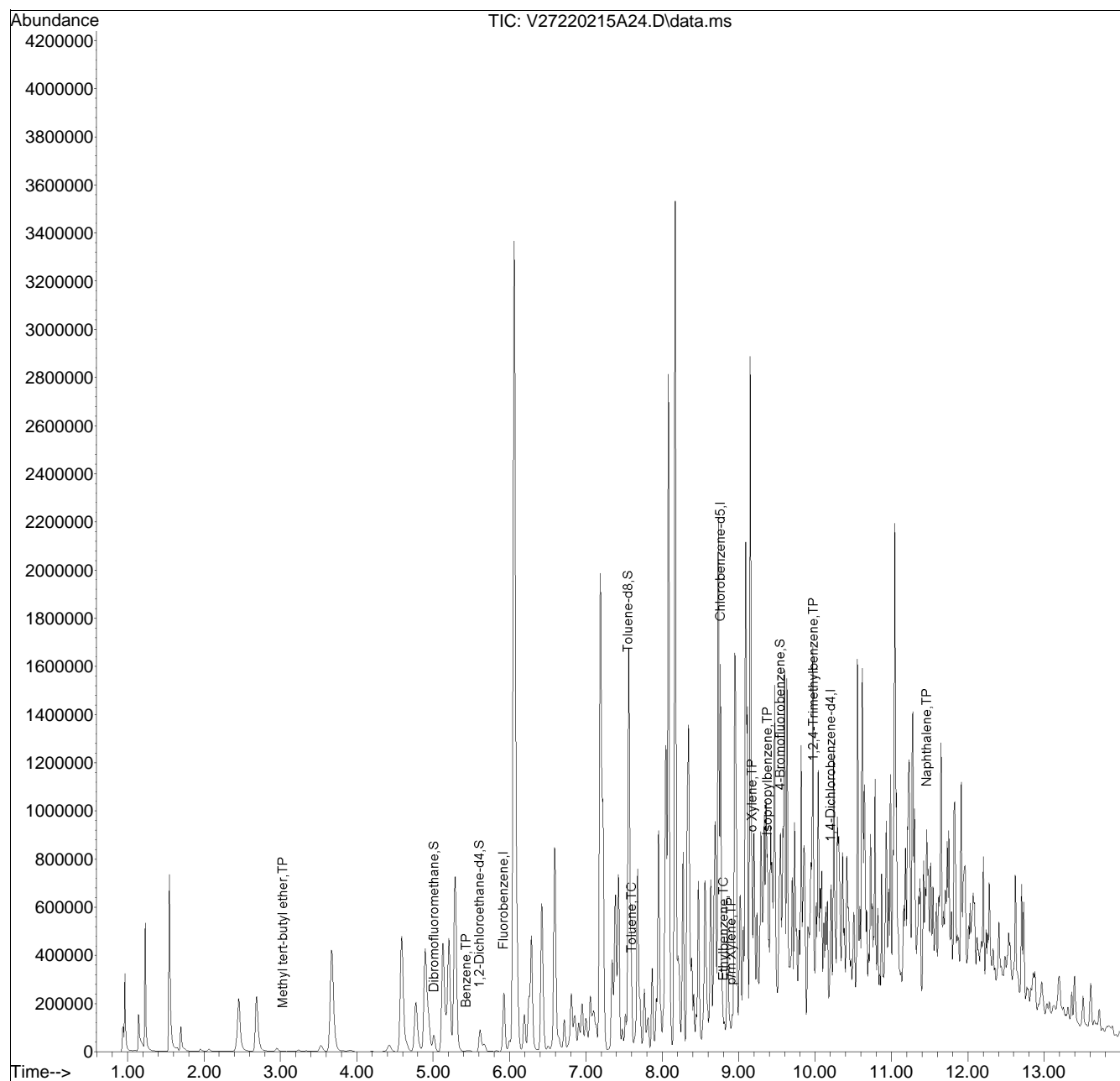


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
 Data File : V27220215A24.D
 Acq On : 15 Feb 2022 08:00 pm
 Operator : VOA127:KJD
 Sample : 12207567-02D,31H,5.48,5,0.050,,a,r2f
 Misc : WG1605520,ICAL18638
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Feb 15 21:10:28 2022
 Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 11 14:36:58 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

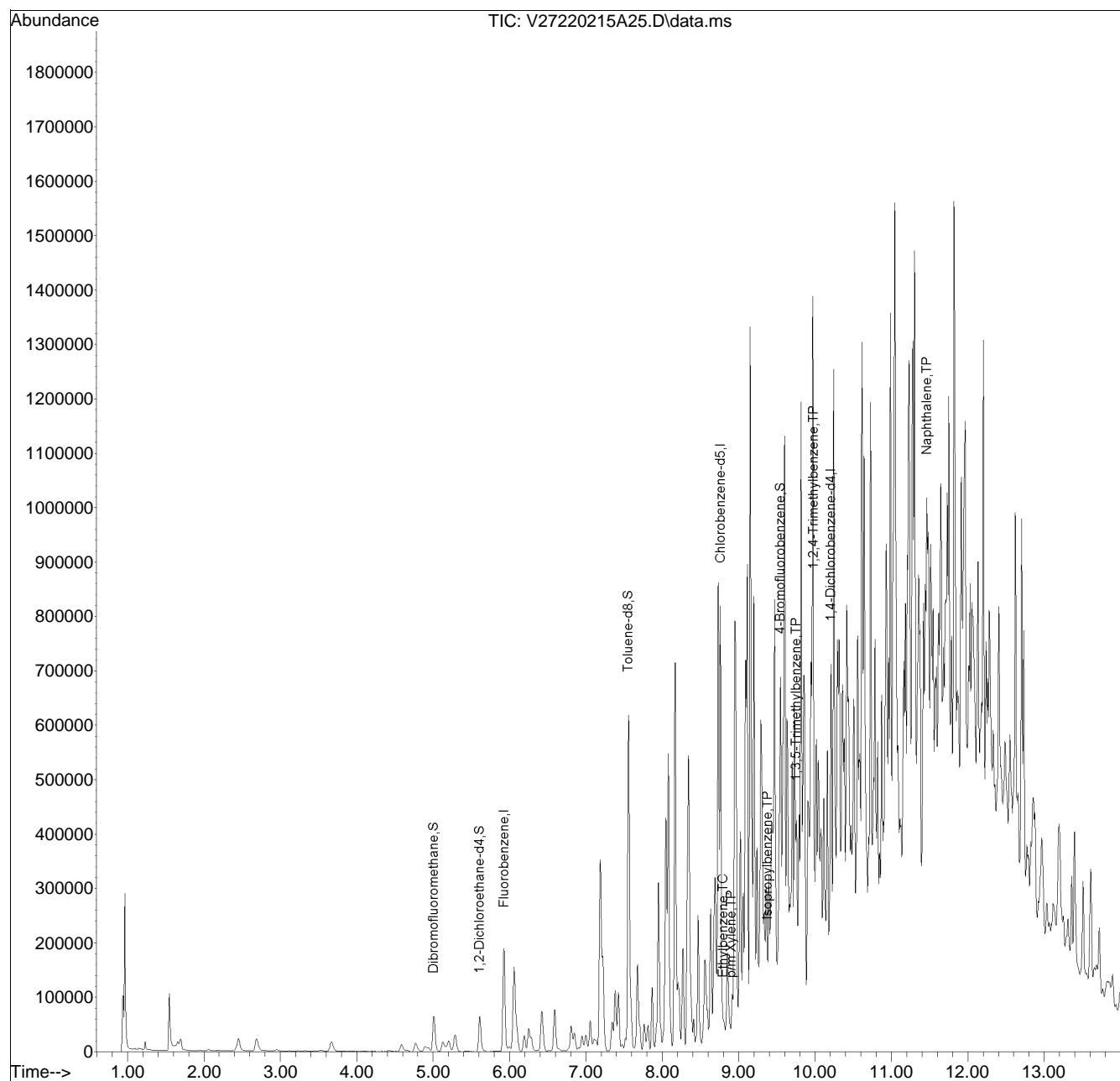


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A25.D
Acq On : 15 Feb 2022 08:20 pm
Operator : VOA127:MKS
Sample : 12207567-03,31H,6.54,5,0.100,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Feb 16 09:22:39 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

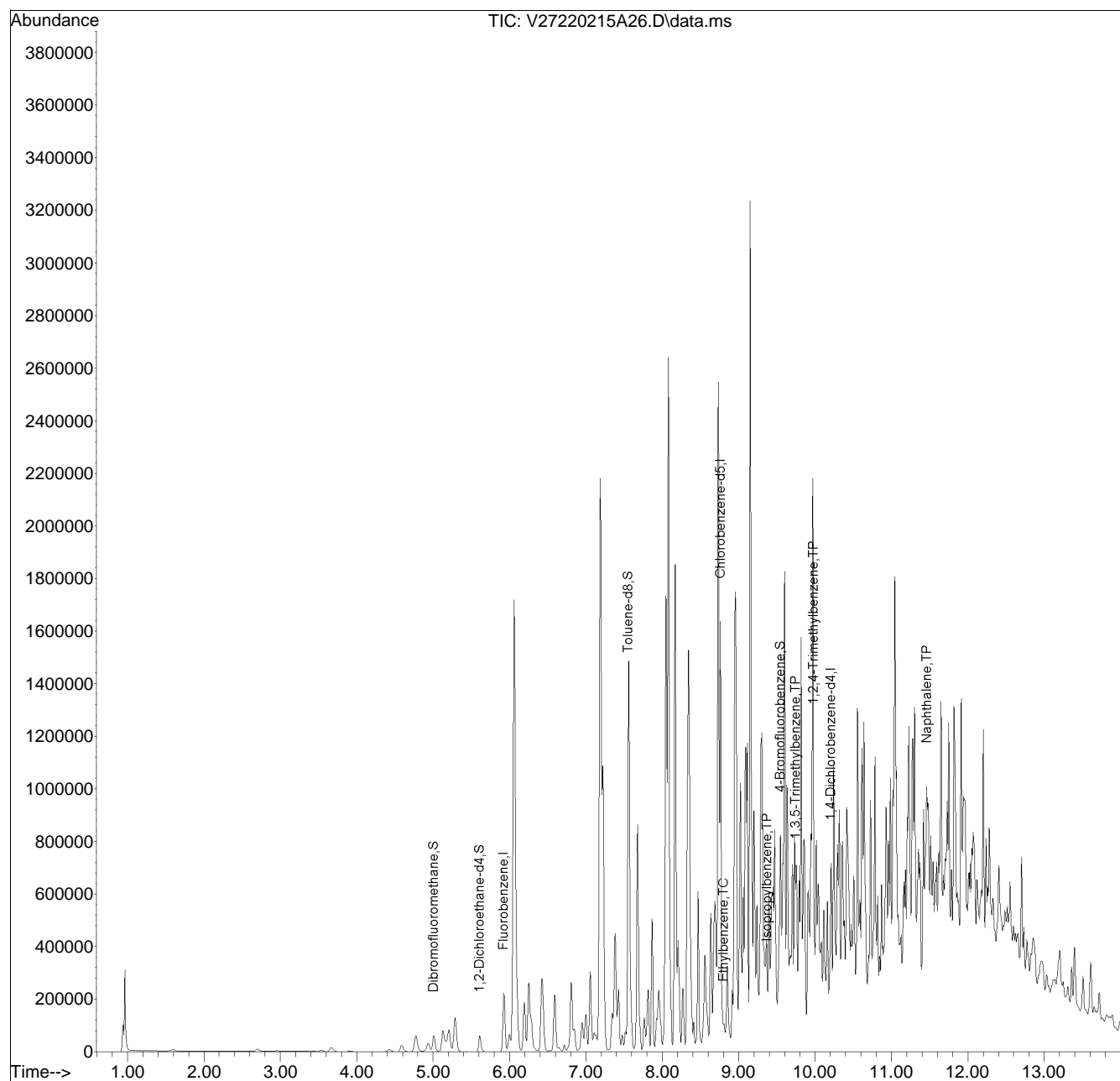


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A26.D
Acq On : 15 Feb 2022 08:41 pm
Operator : VOA127:MKS
Sample : 12207567-04D,31H,5.89,5,0.020,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Feb 16 09:23:12 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•





ANALYTICAL REPORT

Lab Number:	L2207791
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:	200.00135.005.03
Report Date:	02/25/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207791-01	PB-83-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 13:45	02/14/22
L2207791-02	PB-83-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 14:15	02/14/22
L2207791-03	PB-42-09R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 14:45	02/14/22
L2207791-04	PB-42-09R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 15:00	02/14/22

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

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: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Case Narrative (continued)

Report Submission

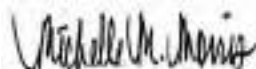
February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207791-01.

February 18, 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.

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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 02/25/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-01
 Client ID: PB-83-01R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 13:45
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 02:12
 Analyst: KDU
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.90		mg/kg	0.037	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-02
 Client ID: PB-83-01R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 14:15
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 05:56
 Analyst: MKS
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.6		mg/kg	0.039	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-04
 Client ID: PB-42-09R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 00:21
 Analyst: MKS
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.18		mg/kg	0.00057	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1605583-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1605584-5					
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	91		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207791

Project Number: 200.00135.005.03

Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1605583-3 WG1605583-4								
Benzene	98		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	92		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207791

Project Number: 200.00135.005.03

Report Date: 02/25/22

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 Batch: WG1605584-3 WG1605584-4								
Benzene	98		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

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: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207791**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**SAMPLE RESULTS**

Lab ID: L2207791-01

Date Collected: 02/14/22 13:45

Client ID: PB-83-01R-14.0-14.5

Date Received: 02/14/22

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	74.0		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207791**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**SAMPLE RESULTS**

Lab ID: L2207791-02

Date Collected: 02/14/22 14:15

Client ID: PB-83-01R-6.0-6.5

Date Received: 02/14/22

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	79.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207791**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**SAMPLE RESULTS**

Lab ID: L2207791-04

Date Collected: 02/14/22 15:00

Client ID: PB-42-09R-6.0-6.5

Date Received: 02/14/22

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	73.7		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207791

Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,04 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: DUP Sample						
Solids, Total	83.0	83.1	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207791**Project Number:** 200.00135.005.03**Report Date:** 02/25/22**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(*)
L2207791-01A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-01B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-02A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-02B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-03A	Vial MeOH preserved	A	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207791-03B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207791-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-04B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207791**Project Number:** 200.00135.005.03**Report Date:** 02/25/22

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: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

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.

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

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-Terpeneol

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-Terpeneol; 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: 508-898-9220 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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: PES Refinery - Delineation -
AST CLOSURE - Site Investigation

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: **5-DAY** Time: _____

Date Rec'd in Lab: 1 **02/15/22**

ALPHA Job #: **L2207791**

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 _____
 PADEP Storage Tank Sampling _____

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene													
<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"/>
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SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
07791-01	PB-83-01R-14.0-14.5	2/14	1345	S	TS
02	PB-83-01R-6.0-6.5	11	1415	S	TS
03	PB-83+2-04R-14.0-14.5		1445	S	TS
04	PB-12-04R-6.0-6.5		1500	S	TS

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By: *[Signature]* Date/Time: **2/14/2022 1:00 PM**
 Received By: *[Signature]* Date/Time: **2/14/2022 1:00 PM**

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.



ANALYTICAL REPORT

Lab Number:	L2207792
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:	200.00135.005.03
Report Date:	03/01/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207792-01	PB-43-01-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:15	02/14/22
L2207792-02	PB-43-02-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:30	02/14/22
L2207792-03	PB-43-03-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:45	02/14/22
L2207792-04	PB-43-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:00	02/14/22
L2207792-05	PB-43-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:10	02/14/22
L2207792-06	PB-43-07-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:20	02/14/22
L2207792-07	PB-43-08-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:30	02/14/22
L2207792-08	PB-43-10-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:40	02/14/22
L2207792-09	PB-43-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:50	02/14/22
L2207792-10	PB-83-04-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:30	02/14/22
L2207792-11	PB-83-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:40	02/14/22
L2207792-12	PB-83-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:50	02/14/22
L2207792-13	PB-83-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:00	02/14/22
L2207792-14	PB-85-09-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:30	02/14/22
L2207792-15	FB-220214	WATER	PHILADELPHIA, PA	02/14/22 15:30	02/14/22
L2207792-16	TB-220214	WATER	PHILADELPHIA, PA	02/14/22 00:00	02/14/22

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

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: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Case Narrative (continued)

Report Revision

March 01, 2022: The Volatile Organics analyte list has been amended on L2207792-12, -13, and -14. In addition, the results of the Metals analysis was removed from L2207792-01 through -14.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207792-02: 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.

L2207792-02 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (538%); 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.

L2207792-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (150%) and 4-bromofluorobenzene (331%); 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.

L2207792-06: 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.

L2207792-06 and -09: 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.

L2207792-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (463%); 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.

L2207792-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (230%);

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Case Narrative (continued)

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.

L2207792-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); 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.

L2207792-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.

L2207792-10: 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.

L2207792-11: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (55%) due to interference with the Internal Standard.

L2207792-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (637%); 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.

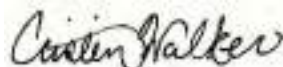
L2207792-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2207792-12: The sample has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

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: 03/01/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-01
 Client ID: PB-43-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:15
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 12:43
 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	0.0097		mg/kg	0.0027	0.00027	1
Benzene	0.00052	J	mg/kg	0.00068	0.00022	1
Toluene	ND		mg/kg	0.0014	0.00073	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	0.00022	J	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	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
 Client ID: PB-43-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 11:50
 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	0.012	J	mg/kg	0.030	0.010	1
Toluene	0.033	J	mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
Isopropylbenzene	0.38		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
 Client ID: PB-43-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/28/22 12:07
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
Toluene	0.0012	J	mg/kg	0.0013	0.00071	1
Ethylbenzene	0.0016		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.50	E	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	538	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-03
 Client ID: PB-43-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:45
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 13:07
 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	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00088	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	0.00016	J	mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.028		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00084	J	mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	150	Q	70-130
4-Bromofluorobenzene	331	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-04
 Client ID: PB-43-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/24/22 13:32
 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	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00041	J	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	116		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	110		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-05
 Client ID: PB-43-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:10
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 14:28
 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	0.0017	0.00017	1
Benzene	0.00070		mg/kg	0.00042	0.00014	1
Toluene	ND		mg/kg	0.00085	0.00046	1
Ethylbenzene	0.00014	J	mg/kg	0.00085	0.00012	1
Isopropylbenzene	0.014		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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-06
 Client ID: PB-43-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:20
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 11:24
 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	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	ND		mg/kg	0.072	0.010	1
Isopropylbenzene	0.35		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	134	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-07
 Client ID: PB-43-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/28/22 09:24
 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	0.00024	J	mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00075	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.10		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00040	J	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	86		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	463	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
 Client ID: PB-43-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:40
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 10:58
 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	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	0.042	J	mg/kg	0.065	0.035	1
Ethylbenzene	0.16		mg/kg	0.065	0.0092	1
Isopropylbenzene	2.6		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.066	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	230	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
 Client ID: PB-43-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:50
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 10:06
 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	0.18	0.018	1
Benzene	ND		mg/kg	0.044	0.015	1
Toluene	ND		mg/kg	0.088	0.048	1
Ethylbenzene	0.62		mg/kg	0.088	0.012	1
Isopropylbenzene	0.50		mg/kg	0.088	0.0096	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.15	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	144	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-10
 Client ID: PB-83-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 09:40
 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	0.13	0.013	1
Benzene	0.46		mg/kg	0.032	0.010	1
Toluene	0.082		mg/kg	0.064	0.034	1
Ethylbenzene	1.0		mg/kg	0.064	0.0090	1
Isopropylbenzene	4.4		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.21		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	224	Q	70-130
Dibromofluoromethane	66	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-11
 Client ID: PB-83-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:40
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 13:35
 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	0.0021	0.00021	1
Benzene	0.0035		mg/kg	0.00052	0.00017	1
Toluene	0.013		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.0073		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.12		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.014		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	637	Q	70-130
Dibromofluoromethane	55	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
 Client ID: PB-83-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:50
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 15:21
 Analyst: JC
 Percent Solids: 78%

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	0.0037		mg/kg	0.00053	0.00018	1
Toluene	0.0043		mg/kg	0.0010	0.00058	1
Ethylbenzene	0.0013		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.038		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0062		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-13
 Client ID: PB-83-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 12:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 13:09
 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	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	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	0.00021	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-14
 Client ID: PB-85-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 12:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/26/22 09:14
 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	0.13	0.013	1
Benzene	1.7		mg/kg	0.033	0.011	1
Toluene	0.70		mg/kg	0.067	0.036	1
Ethylbenzene	2.8		mg/kg	0.067	0.0094	1
Isopropylbenzene	2.6		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.62		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.48		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
 Client ID: FB-220214
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 10:38
 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	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-16
 Client ID: TB-220214
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 00:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/15/22 11:01
 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	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/15/22 09:52
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1605333-5					
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	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/24/22 09:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-04 Batch: WG1609126-5					
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	115		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06,08-10,14 Batch: WG1609759-5					
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	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05,11-13 Batch: WG1609760-5					
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	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,07 Batch: WG1609768-5					
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	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207792

Project Number: 200.00135.005.03

Report Date: 03/01/22

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1605333-3 WG1605333-4									
Methyl tert butyl ether	110		100		63-130		10		20
Benzene	100		100		70-130		0		20
Toluene	110		110		70-130		0		20
Ethylbenzene	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		100		70-130		10		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	99		101		70-130
4-Bromofluorobenzene	99		101		70-130
Dibromofluoromethane	101		102		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-04 Batch: WG1609126-3 WG1609126-4								
Methyl tert butyl ether	87		87		66-130	0		30
Benzene	86		84		70-130	2		30
Toluene	86		85		70-130	1		30
Ethylbenzene	85		83		70-130	2		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	98		96		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	100		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207792

Project Number: 200.00135.005.03

Report Date: 03/01/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06,08-10,14 Batch: WG1609759-3 WG1609759-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		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	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207792

Project Number: 200.00135.005.03

Report Date: 03/01/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05,11-13 Batch: WG1609760-3 WG1609760-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		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	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207792

Project Number: 200.00135.005.03

Report Date: 03/01/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,07 Batch: WG1609768-3 WG1609768-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30
Ethylbenzene	85		80		70-130	6		30
Isopropylbenzene	82		76		70-130	8		30
1,3,5-Trimethylbenzene	85		80		70-130	6		30
1,2,4-Trimethylbenzene	87		82		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-01
 Client ID: PB-43-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:15
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 16:09
 Analyst: CMM
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
 Client ID: PB-43-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 16:34
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	131	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-03
 Client ID: PB-43-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:45
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 16:58
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	96		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-04
 Client ID: PB-43-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 17:22
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

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	90		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	90		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-05
 Client ID: PB-43-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:10
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 17:46
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

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	95		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-06
 Client ID: PB-43-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:20
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 18:11
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

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	147	Q	23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	86		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-07
 Client ID: PB-43-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 18:35
 Analyst: CMM
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	176	Q	23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
 Client ID: PB-43-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:40
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 18:59
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	174	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
 Client ID: PB-43-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:50
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 19:23
 Analyst: CMM
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-10
 Client ID: PB-83-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 19:48
 Analyst: CMM
 Percent Solids: 86%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

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	71		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-11
 Client ID: PB-83-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:40
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 20:12
 Analyst: CMM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	121	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
 Client ID: PB-83-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:50
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 20:36
 Analyst: CMM
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	1.3	0.15	6

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	135	Q	23-120
2-Fluorobiphenyl	108		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-13
 Client ID: PB-83-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 12:00
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 21:01
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	1.9		mg/kg	0.19	0.024	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	129	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-14
 Client ID: PB-85-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 12:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/26/22 21:25
 Analyst: CMM
 Percent Solids: 84%

Extraction Method: EPA 3546
 Extraction Date: 02/25/22 23:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
 Client ID: FB-220214
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:30
 Date Received: 02/14/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/20/22 11:27
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/19/22 11:38

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 15 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/26/22 14:56
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-14 Batch: WG1609255-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 15 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-14 Batch: WG1609255-2 WG1609255-3								
Naphthalene	75		77		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	71		70		23-120
2-Fluorobiphenyl	80		81		30-120
4-Terphenyl-d14	83		84		18-120



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-01

Date Collected: 02/14/22 09:15

Client ID: PB-43-01-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-02

Date Collected: 02/14/22 09:30

Client ID: PB-43-02-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-03

Date Collected: 02/14/22 09:45

Client ID: PB-43-03-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-04

Date Collected: 02/14/22 10:00

Client ID: PB-43-05-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-05

Date Collected: 02/14/22 10:10

Client ID: PB-43-06-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-06
 Client ID: PB-43-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:20
 Date Received: 02/14/22
 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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-07

Date Collected: 02/14/22 10:30

Client ID: PB-43-08-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-08

Date Collected: 02/14/22 10:40

Client ID: PB-43-10-SS01

Date Received: 02/14/22

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	81.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
Client ID: PB-43-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:50
Date Received: 02/14/22
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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-10

Date Collected: 02/14/22 11:30

Client ID: PB-83-04-SS01

Date Received: 02/14/22

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	86.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-11

Date Collected: 02/14/22 11:40

Client ID: PB-83-05-SS01

Date Received: 02/14/22

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	84.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-12

Date Collected: 02/14/22 11:50

Client ID: PB-83-06-SS01

Date Received: 02/14/22

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	78.4		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-13

Date Collected: 02/14/22 12:00

Client ID: PB-83-11-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**SAMPLE RESULTS**

Lab ID: L2207792-14

Date Collected: 02/14/22 12:30

Client ID: PB-85-09-SS01

Date Received: 02/14/22

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	-	02/15/22 06:37	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207792

Report Date: 03/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: PB-43-01-SS01						
Solids, Total	83.0	83.1	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**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(*)
L2207792-01A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-01B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-01E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-02A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207792-02B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-02E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-03A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-03B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-03E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-04A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-04B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-04E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-05A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-05B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-05C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-05D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-05E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-06A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-06B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-06E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-07A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-07B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-07E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-08A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-08B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-08E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-09B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-09E	Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-10B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-10E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207792**Project Number:** 200.00135.005.03**Report Date:** 03/01/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-11A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-11B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-11E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-12A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-12B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-12E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-13A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-13B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-13E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-14A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-14B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-14E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-15A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15C	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15D	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-15E	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-16A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-16B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

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: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

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.

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

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-Terpeneol

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-Terpeneol; 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 Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3215

Client Information

Client: Ransom Consulting, LLC
 Address: 2127 Hamilton Avenue
 Trenton, NJ 08619
 Phone: 215-901-4974

Project Information

Project Name: Philadelphia Refinery -
 AST CLSURC

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: 5-DAY
 Time:

Fax: 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
 Note: RN NAP VIA 8270!

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207792

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

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	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	TOTAL # BOTTLES
		Date	Time															
07792-01	PB-43-01-SS01	2/14	0915	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"/>		13
-02	PB-43-02-SS01		0930			<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"/>		
-03	PB-43-03-SS01		0945			<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"/>		
-04	PB-43-05-SS01		1000			<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"/>		
-05	PB-43-06-SS01		1010			<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"/>		
-06	PB-43-07-SS01		1020			<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"/>		
-07	PB-43-08-SS01		1030			<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"/>		
-08	PB-43-10-SS01		1040			<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"/>		
-09	PB-43-11-SS01		1050			<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"/>		
-10	PB-43-09-SS01		1130			<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"/>		

Container Type: G G G - - - - -
 Preservative: F A A - - - - -

Relinquished By: [Signature] Date/Time: 2/14/22
 Received By: [Signature] Date/Time: 2/14/22
 [Signature] 2/14/22
 [Signature] 2/15/22
 [Signature] 2/15/22

Please print clearly, legibly and completely. Samples can not be fogged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

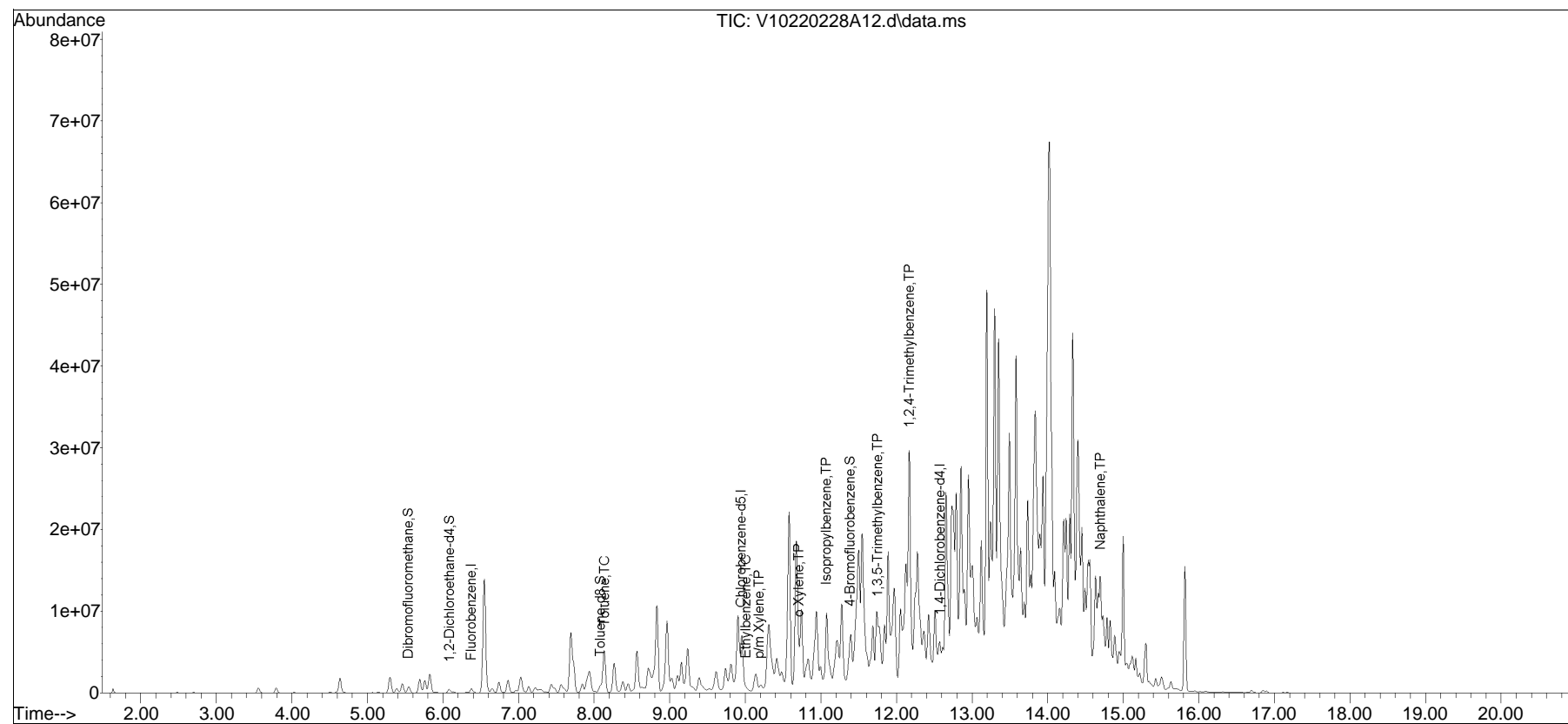
FORM NO: 01-010-02 (rev. 7-04-02)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220228A\
 Data File : V10220228A12.d
 Acq On : 28 Feb 2022 12:07 pm
 Operator : VOA110:MKS
 Sample : L2207792-02,31,4.54,5,,C,R2F
 Misc : WG1609768,ICAL18690
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Feb 28 12:55:03 2022
 Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Wed Jan 26 10:00:28 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•

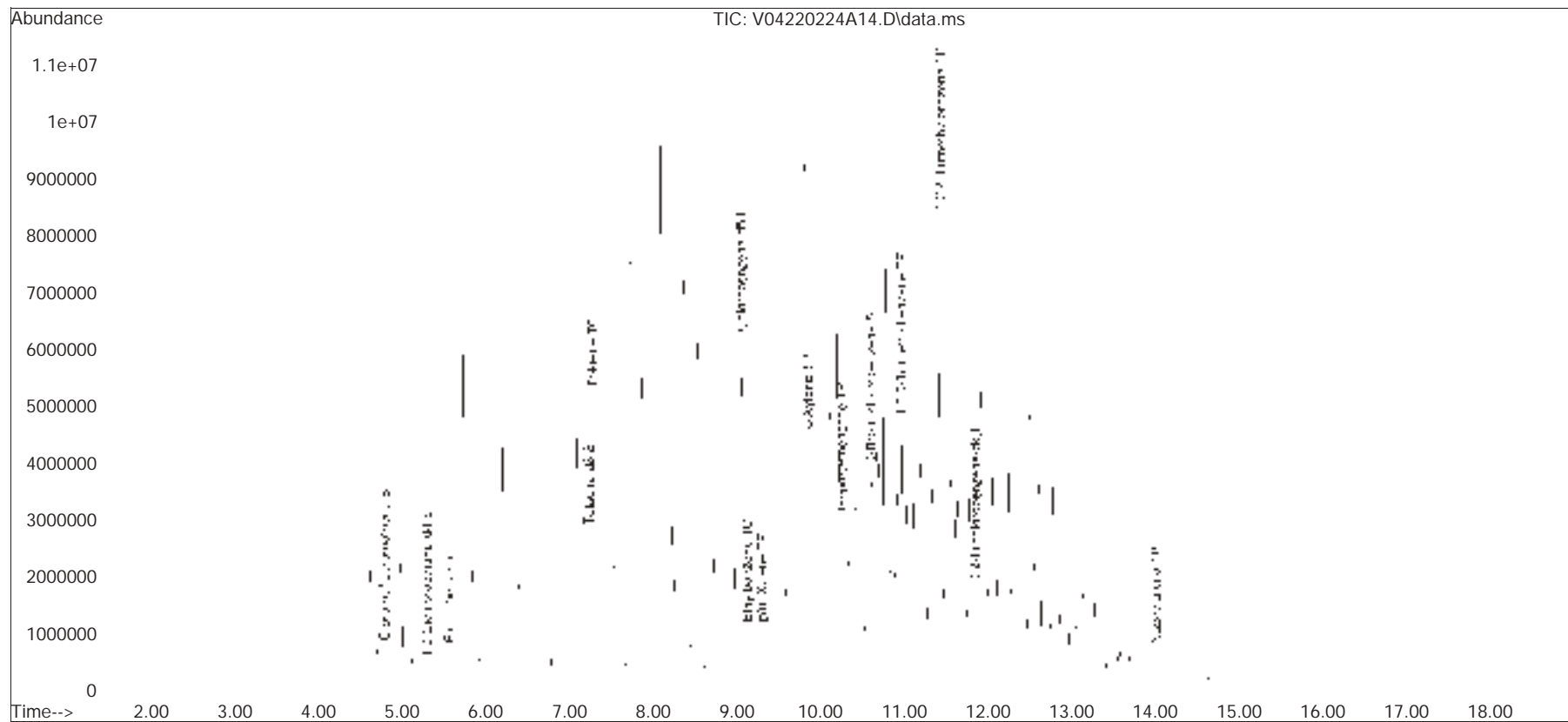


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220224A\
Data File : V04220224A14.D
Acq On : 24 Feb 2022 1:07 pm
Operator : VOA104:AJK
Sample : L2207792-03,31,6.37,5,,B,R2F
Misc : WG1609126,ICAL18563
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 28 07:28:57 2022
Quant Method : I:\VOLATILES\VOA104\2022\220224A\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 list24A\V04220224A01.D•

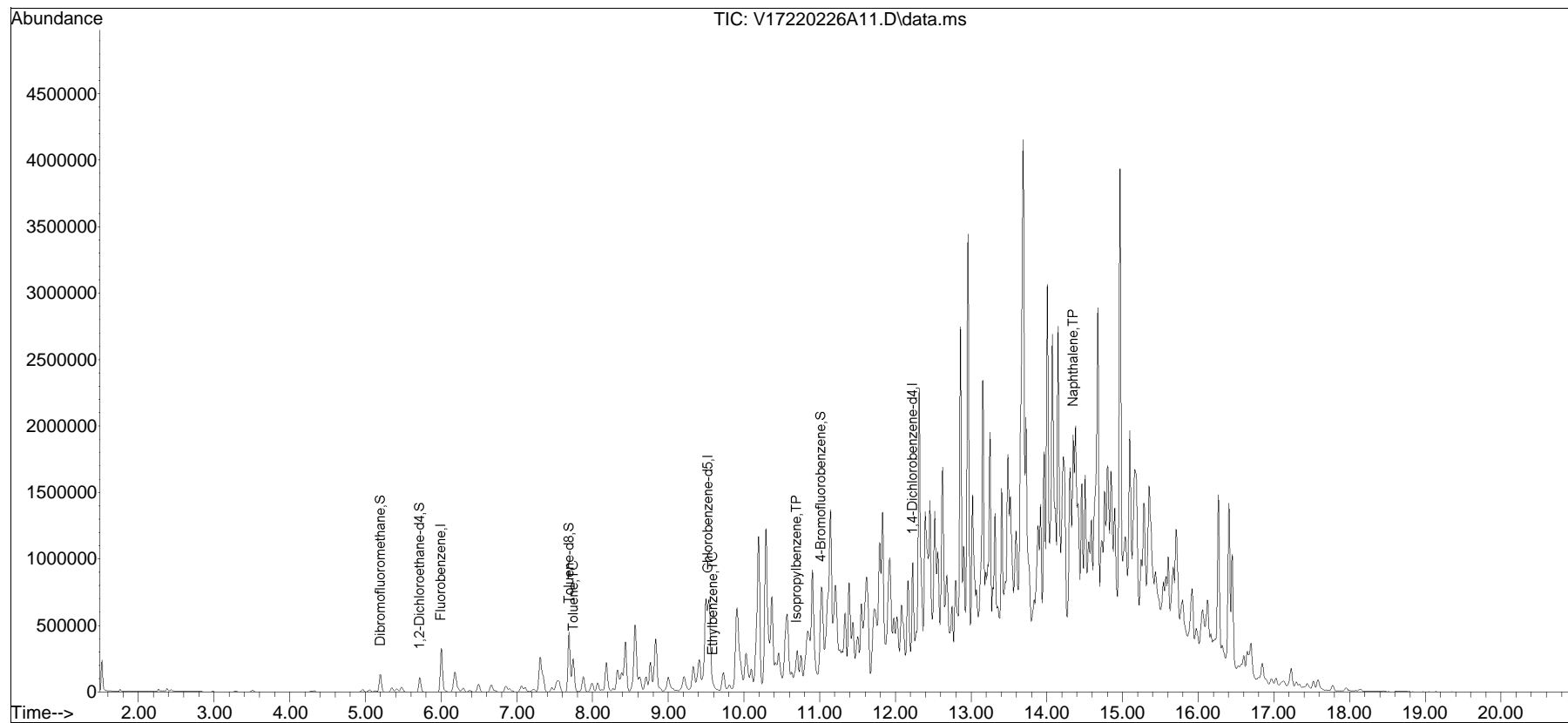


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A11.D
Acq On : 26 Feb 2022 11:24 am
Operator : VOA117:JC
Sample : L2207792-06,31H,5.04,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 28 10:36:13 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

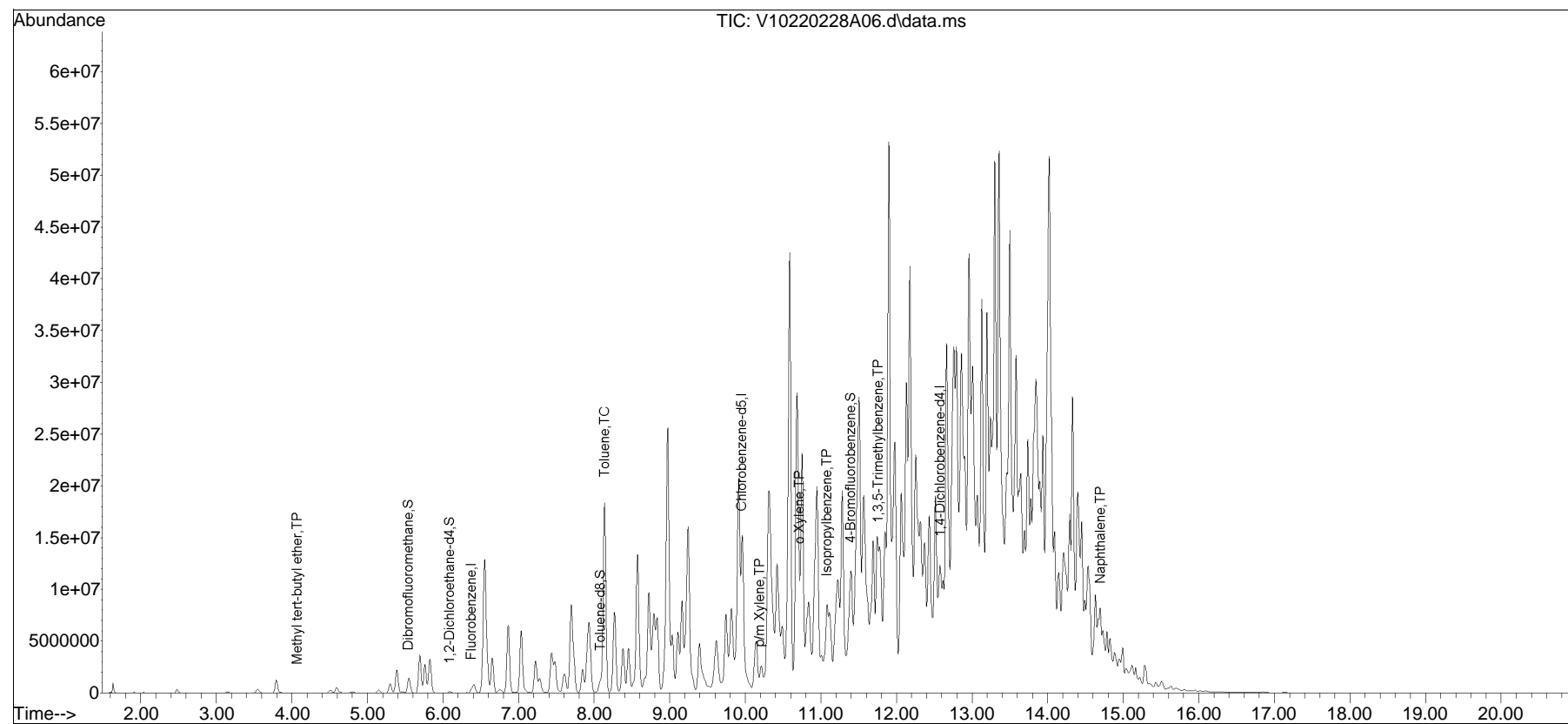


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220228A\
Data File : V10220228A06.d
Acq On : 28 Feb 2022 9:24 am
Operator : VOA110:MKS
Sample : L2207792-07,31,6.08,5,,B,R2F
Misc : WG1609768,ICAL18690
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 28 12:52:38 2022
Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•

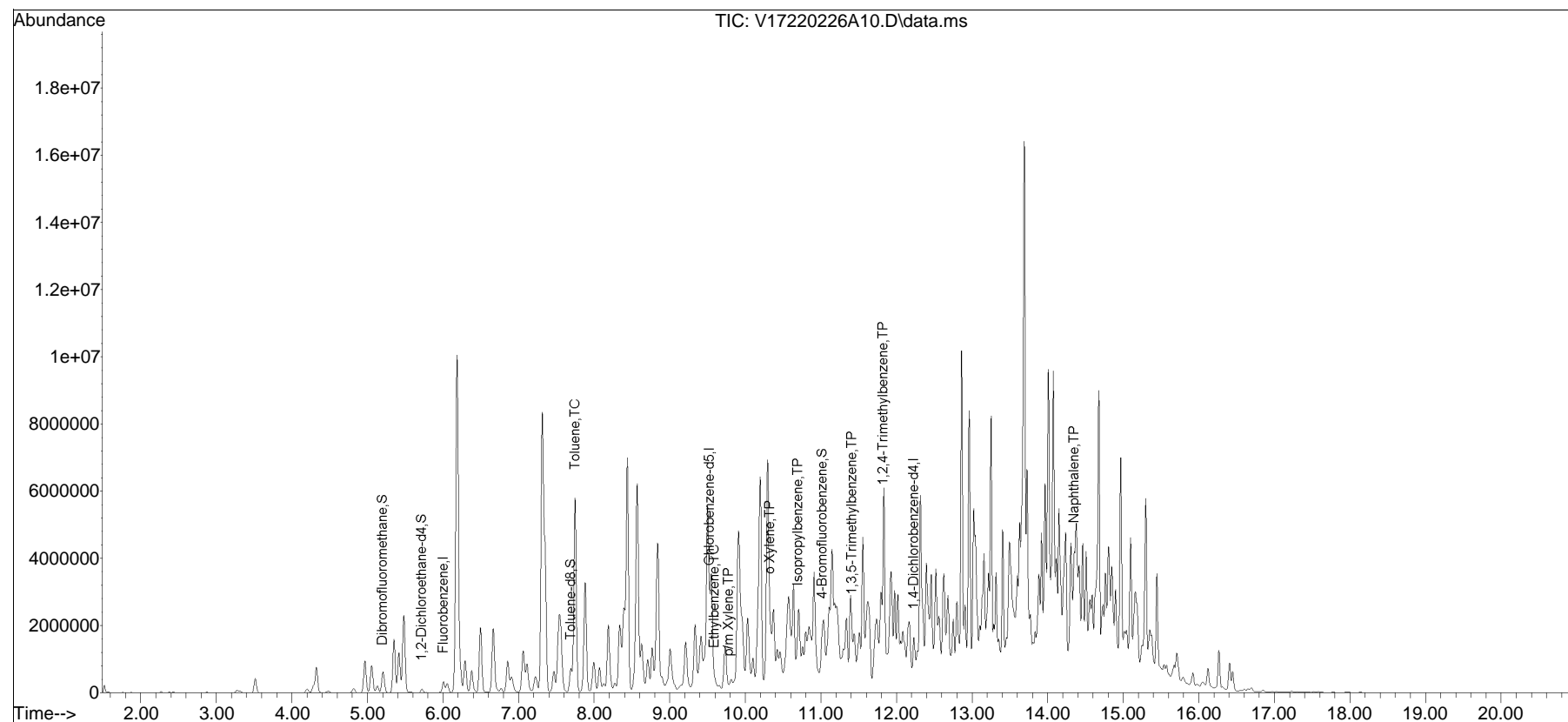


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A10.D
Acq On : 26 Feb 2022 10:58 am
Operator : VOA117:JC
Sample : L2207792-08,31H,5.65,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 28 10:35:43 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

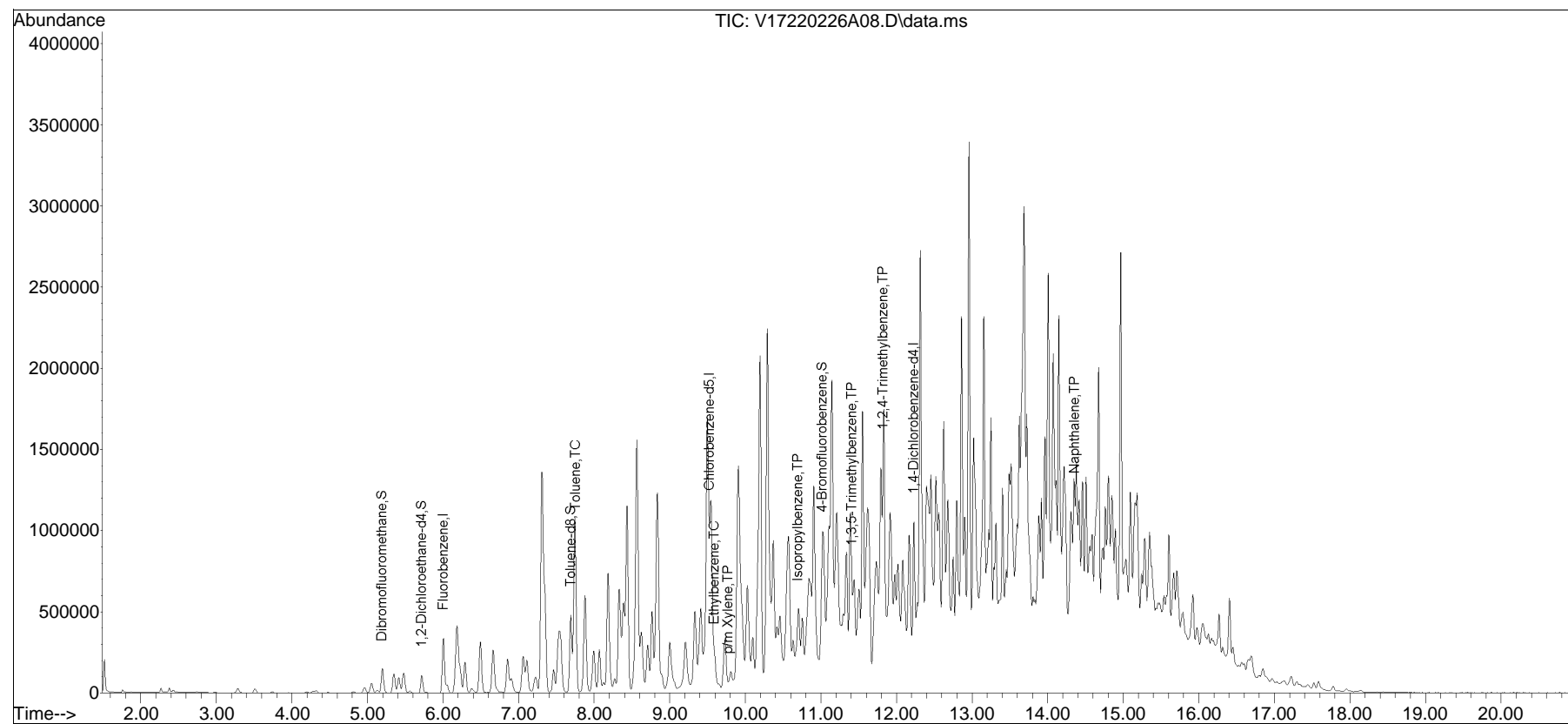


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A08.D
Acq On : 26 Feb 2022 10:06 am
Operator : VOA117:JC
Sample : L2207792-09,31H,3.93,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 28 10:34:58 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

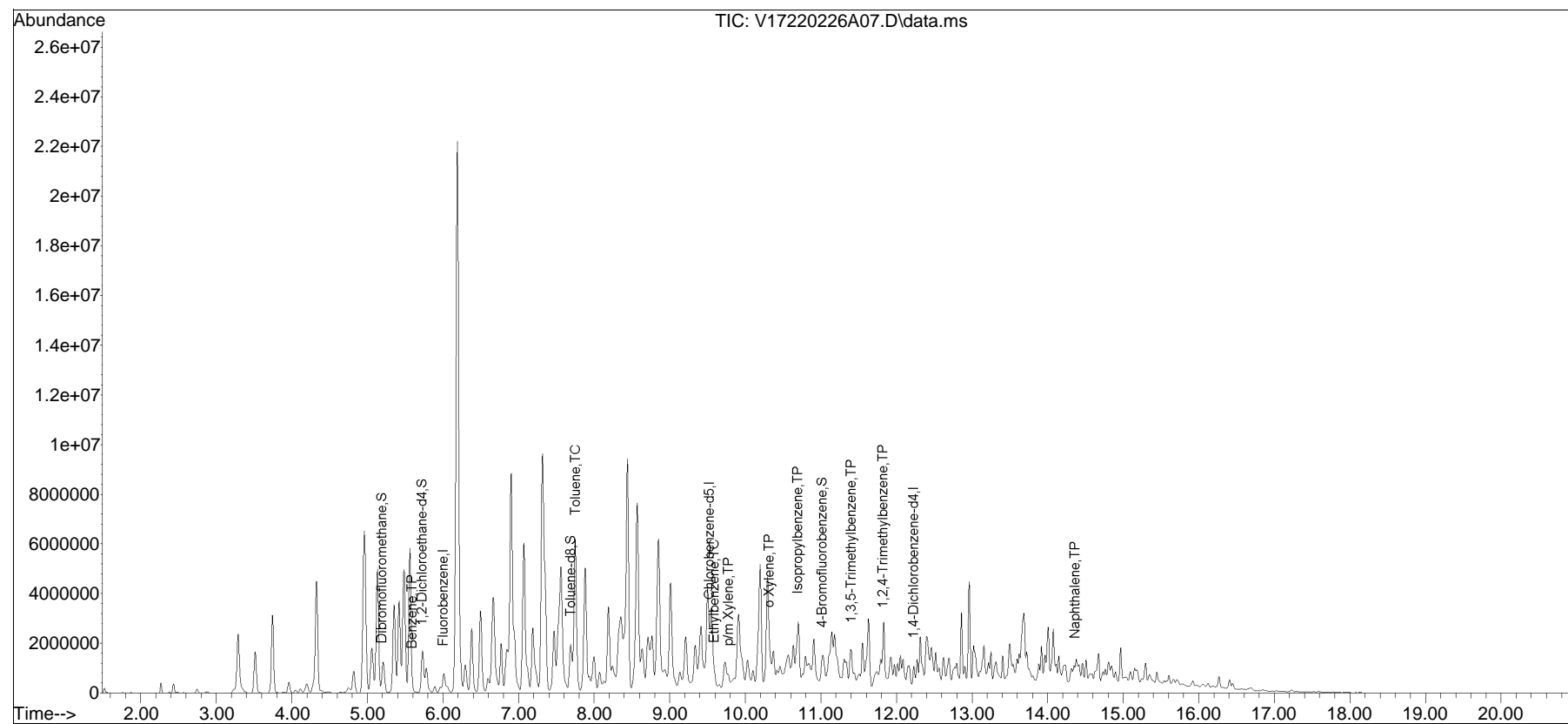


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
 Data File : V17220226A07.D
 Acq On : 26 Feb 2022 09:40 am
 Operator : VOA117:JC
 Sample : L2207792-10,31H,5.22,5,0.100,,A,R2F
 Misc : WG1609759,ICAL18616
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 28 10:33:49 2022
 Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Jan 04 09:06:06 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

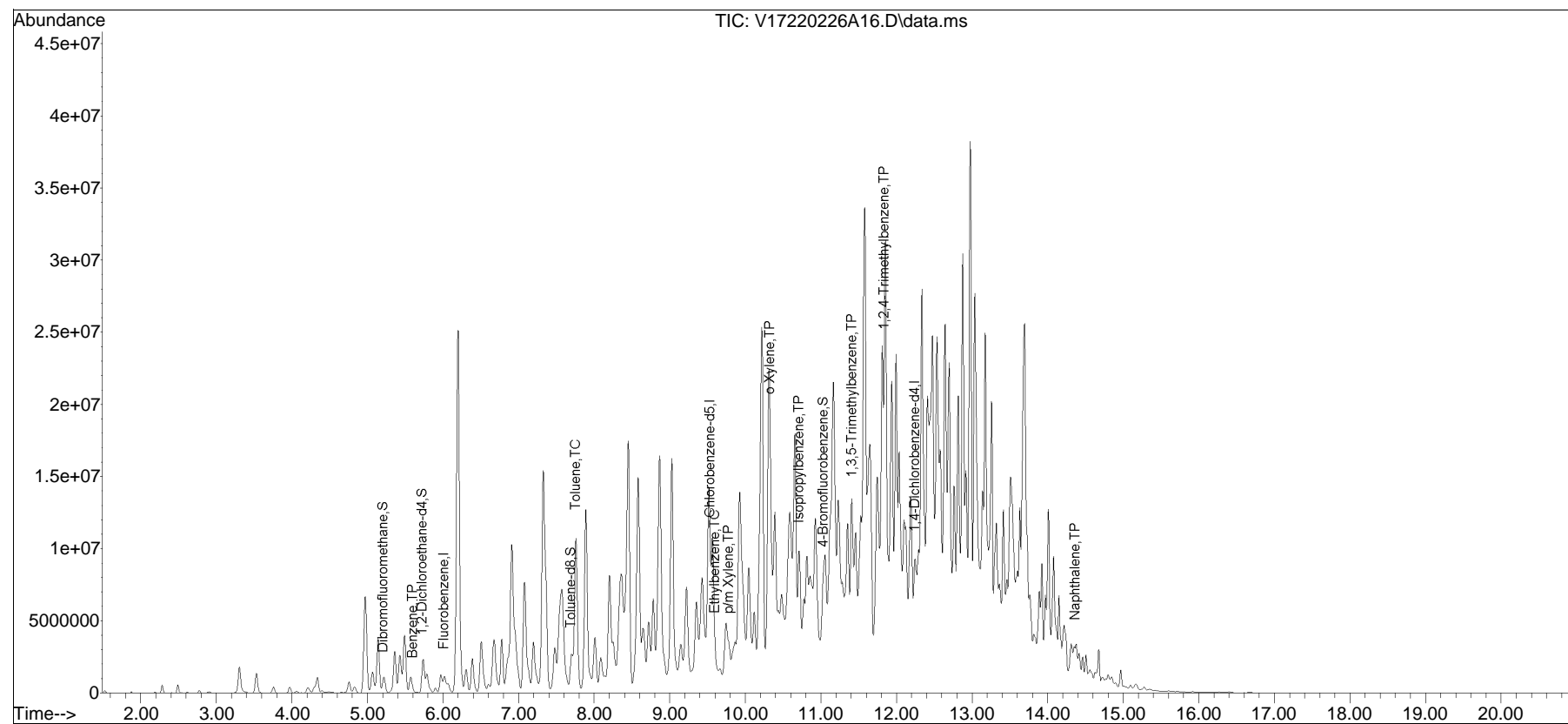


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A16.D
Acq On : 26 Feb 2022 01:35 pm
Operator : VOA117:JC
Sample : L2207792-11,31,5.68,5,,B,R2F
Misc : WG1609760,ICAL18616
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 28 10:39:50 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

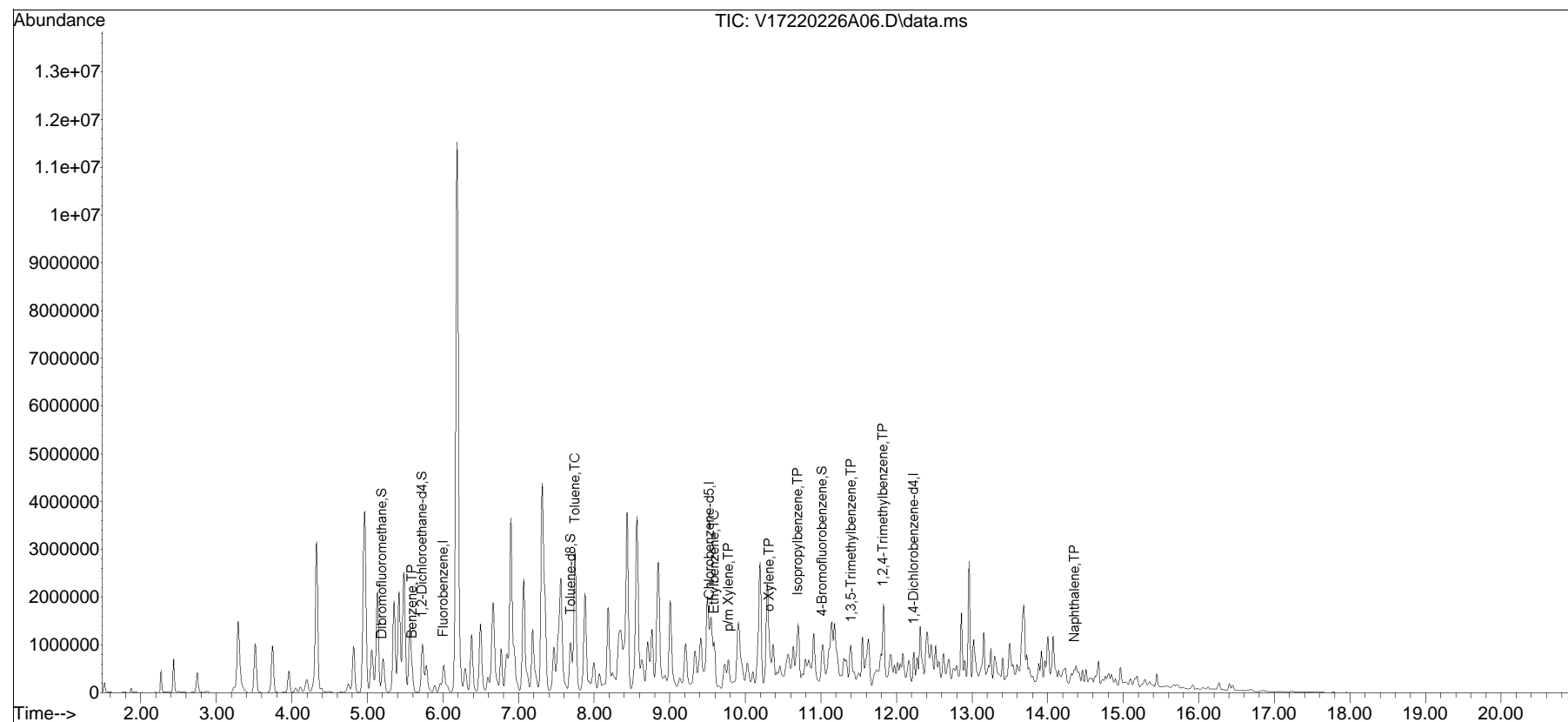


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A06.D
Acq On : 26 Feb 2022 09:14 am
Operator : VOA117:JC
Sample : L2207792-14,31H,5.23,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 28 10:33:10 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•





ANALYTICAL REPORT

Lab Number:	L2207973
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	03/02/22

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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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207973-01	PB-84-04R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 09:15	02/15/22
L2207973-02	PB-84-04R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 09:25	02/15/22
L2207973-03	PB-84-04R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 09:35	02/15/22
L2207973-04	PB-128-05R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:00	02/15/22
L2207973-05	PB-128-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:10	02/15/22
L2207973-06	PB-128-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 13:20	02/15/22
L2207973-07	PB-129-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:40	02/15/22
L2207973-08	PB-129-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:50	02/15/22
L2207973-09	PB-129-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:00	02/15/22
L2207973-10	PB-129-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 14:20	02/15/22
L2207973-11	PB-129-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:30	02/15/22

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Case Narrative (continued)

Report Submission

March 02, 2022: This final report includes the results of the Total Lead analysis performed on L2207973-06.

February 22, 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

L2207973-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (336%); 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.

L2207973-05: 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.

L2207973-10: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (16%) and the surrogate recovery for 4-bromofluorobenzene (1002%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. 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; however, since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. The results of both analyses are reported.

L2207973-10: 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 sample non-homogeneity.

Total Metals

The WG1606094-3 MS recovery, performed on L2207973-04, is outside the acceptance criteria for lead (50%). A post digestion spike was performed and yielded an unacceptable recovery for lead (50%). The serial

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

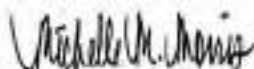
Lab Number: L2207973
Report Date: 03/02/22

Case Narrative (continued)

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:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 03/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
 Client ID: PB-84-04R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 09:25
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 04:10
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.28		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	336	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05
 Client ID: PB-128-05R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:10
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 12:08
 Analyst: JC
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

Benzene	0.11		mg/kg	0.051	0.017	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-10
 Client ID: PB-129-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:20
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 03:21
 Analyst: AJK
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.69	E	mg/kg	0.00053	0.00018	1
Toluene	0.44	E	mg/kg	0.0011	0.00058	1
Ethylbenzene	2.0	E	mg/kg	0.0011	0.00015	1
p/m-Xylene	5.3	E	mg/kg	0.0021	0.00059	1
o-Xylene	0.79	E	mg/kg	0.0011	0.00031	1
1,3,5-Trimethylbenzene	14.	E	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	20.	E	mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	1000	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-10
 Client ID: PB-129-18-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:20
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 12:33
 Analyst: JC
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.048		mg/kg	0.031	0.010	1
Toluene	0.082		mg/kg	0.062	0.034	1
Ethylbenzene	0.29		mg/kg	0.062	0.0088	1
p/m-Xylene	0.88		mg/kg	0.12	0.035	1
o-Xylene	0.12		mg/kg	0.062	0.018	1
Xylenes, Total	1.0		mg/kg	0.062	0.018	1
1,3,5-Trimethylbenzene	0.78		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:48
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,10 Batch: WG1607642-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
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
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	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1607679-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
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
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	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1607683-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,10 Batch: WG1607642-3 WG1607642-4								
Benzene	96		93		70-130	3		30
Toluene	99		96		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		88		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	106		97		70-130
Dibromofluoromethane	95		92		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1607679-3 WG1607679-4								
Benzene	100		100		70-130	0		30
Toluene	104		104		70-130	0		30
Ethylbenzene	104		105		70-130	1		30
p/m-Xylene	111		112		70-130	1		30
o-Xylene	110		110		70-130	0		30
1,3,5-Trimethylbenzene	103		108		70-130	5		30
1,2,4-Trimethylbenzene	102		108		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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 Batch: WG1607683-3 WG1607683-4								
Benzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130



SEMIVOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-01
 Client ID: PB-84-04R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 09:15
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 17:07
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	64		18-120



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
 Client ID: PB-84-04R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 09:25
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 16:43
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

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	57		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	59		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/19/22 10:37
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 02/18/22 18:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

METALS



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-04

Date Collected: 02/15/22 13:00

Client ID: PB-128-05R-0.0-0.5

Date Received: 02/15/22

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	6.38		mg/kg	2.01	0.108	1	02/17/22 15:03	02/17/22 23:12	EPA 3050B	1,6010D	MC



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05

Date Collected: 02/15/22 13:10

Client ID: PB-128-05R-6.0-6.5

Date Received: 02/15/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1780		mg/kg	2.60	0.140	1	02/17/22 15:03	02/17/22 23:02	EPA 3050B	1,6010D	MC



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-06

Date Collected: 02/15/22 13:20

Client ID: PB-128-05R-14.0-14.5

Date Received: 02/15/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 52%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	38.1		mg/kg	3.80	0.204	1	02/23/22 22:40	03/02/22 11:39	EPA 3050B	1,6010D	EW



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-07

Date Collected: 02/15/22 13:40

Client ID: PB-129-01R-0.0-0.5

Date Received: 02/15/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	231		mg/kg	2.69	0.144	1	02/17/22 15:03	02/17/22 23:07	EPA 3050B	1,6010D	MC



Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207973

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-08

Date Collected: 02/15/22 13:50

Client ID: PB-129-01R-6.0-6.5

Date Received: 02/15/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	202		mg/kg	2.52	0.135	1	02/17/22 15:03	02/17/22 23:46	EPA 3050B	1,6010D	MC



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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): 04-05,07-08 Batch: WG1606094-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

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): 06 Batch: WG1608436-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5												
Lead, Total	6.38	42.8	27.9	50	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	44	Q	-	-		75-125	-		20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5						
Lead, Total	6.38	6.72	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	23	Q	20



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

**Lab Serial Dilution
 Analysis
 Batch Quality Control**

Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20



INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-01
Client ID: PB-84-04R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 09:15
Date Received: 02/15/22
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	81.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
 Client ID: PB-84-04R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 09:25
 Date Received: 02/15/22
 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	81.4		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-04
 Client ID: PB-128-05R-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:00
 Date Received: 02/15/22
 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	94.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05
 Client ID: PB-128-05R-6.0-6.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:10
 Date Received: 02/15/22
 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	72.7		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-06
 Client ID: PB-128-05R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:20
 Date Received: 02/15/22
 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	51.9		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-07
Client ID: PB-129-01R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:40
Date Received: 02/15/22
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	70.6		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-08
Client ID: PB-129-01R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:50
Date Received: 02/15/22
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	75.9		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-10
Client ID: PB-129-18-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:20
Date Received: 02/15/22
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	92.3		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207973

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07-08,10 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: PB-84-04R-0.0-0.5						
Solids, Total	81.1	80.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 06 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207973**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**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	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207973-01A	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207973-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-02E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2207973-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-03E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		HOLD-8270(14)
L2207973-04A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-04B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-05E	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05F	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-06B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06F	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)

Project Name: PES REFINERY-SITE INVESTIGATIO**Lab Number:** L2207973**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207973-06G	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06H	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-07A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-07B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-08A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-08B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-09A	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		HOLD-METAL(180)
L2207973-09B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-10A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207973-10B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-11A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-11B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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.

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

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-Terpeneol

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-Terpeneol; 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: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

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 project-specific analyte list per attached TS

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		

ALPHA Lab ID	Sample ID	Date	Time	Sample Matrix	Sampler's Initials
079973-01	PB-34-04R-00-0.5	2/15	0915	S	TS
-02	PB-34-04R-6.0-6.5		0925	S	
-03	PB-34-04R-14.0-14.5		0935	S	
-04	PB-123-05R-00-0.5		1300	S	
-05	PB-123-05R-6.0-6.5		1310	S	
-06	PB-123-05R-14.0-14.5		1320	S	
-07	PB-124-01R-00-0.5		1340	S	
-08	PB-124-01R-6.0-6.5		1350	S	
-09	PB-124-01R-14.0-14.5		1400	S	
-10	PB-124-13-10-6.5		1420	S	

FORM NO. 850114 (rev. 5-24-12)

Project Information

Project Name: PES Refinery - Delineation
SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

Due Date: 5-DAY
Time:

Date Rec'd in Lab: 1 02/16/22

ALPHA Job #: L2207973

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: PADEP Storage Tank Sampling
Criteria:

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-IMB	1,3,5-TMB	ETHYL BENZENE	XYLENES	SAMPLE HANDLING	TOTAL BOTTLES
<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"/>	1
<input type="checkbox"/>	<input checked="" 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"/>	5
<input type="checkbox"/>	<input checked="" 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"/>	5 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"/>	2
<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"/>	6
<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"/>	6 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"/>	2
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<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4

SAMPLE HANDLING
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

Sample Specific Comments

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/15 1535	ST- AAC	2/16/22 1535
<i>[Signature]</i>	2/15/22 1800	<i>[Signature]</i>	2/15/22 1800
<i>[Signature]</i>	2/15 2100	<i>[Signature]</i>	2/15/22 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.

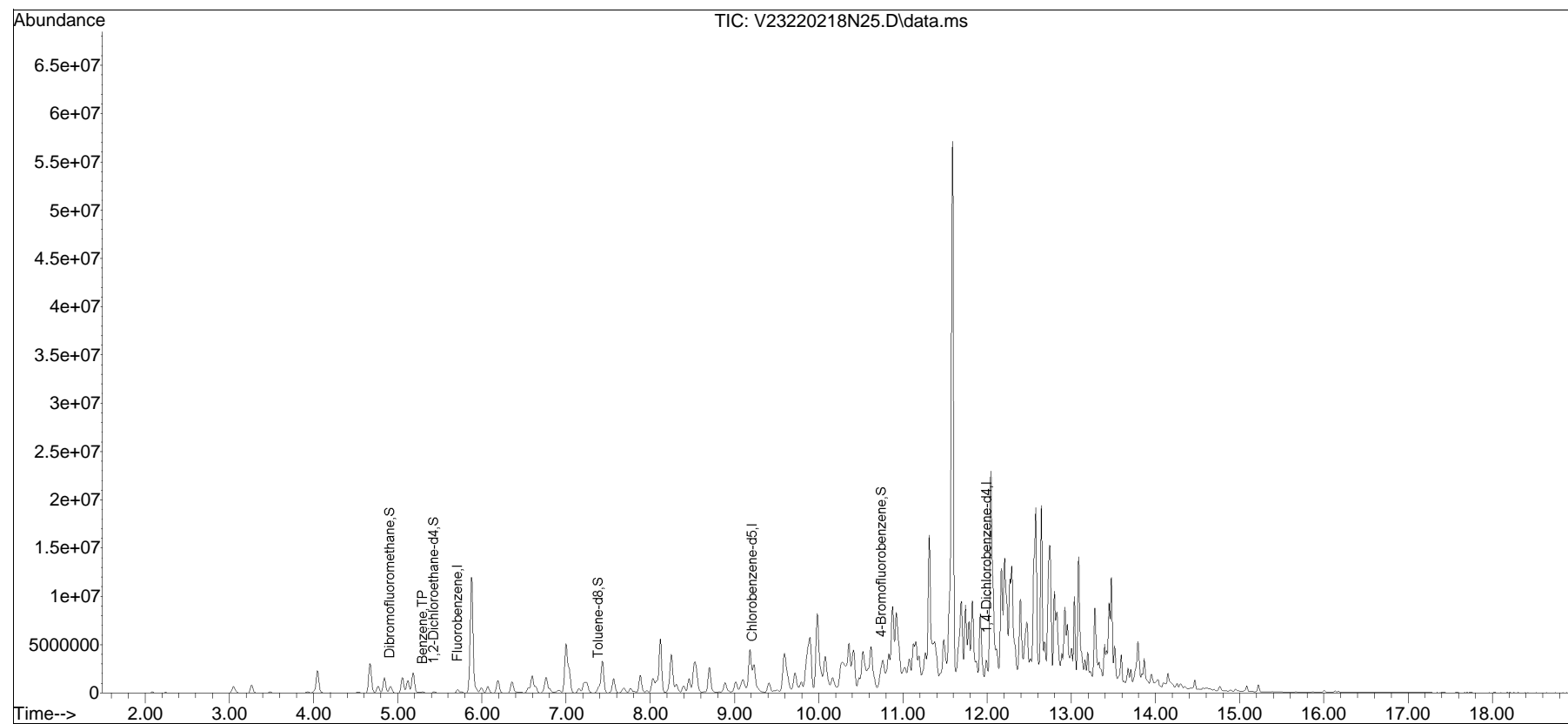
[Handwritten signatures and dates]
2/15/22 2100
2/16/22 1535
2/16/22 2845

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N25.D
Acq On : 19 Feb 2022 04:10 am
Operator : VOA123:AJK
Sample : 12207973-02,31H,6.04,5,0.100,,a,r2f
Misc : WG1607683,ICAL18401
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Feb 20 21:51:22 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220218N\V23220218N01.D•

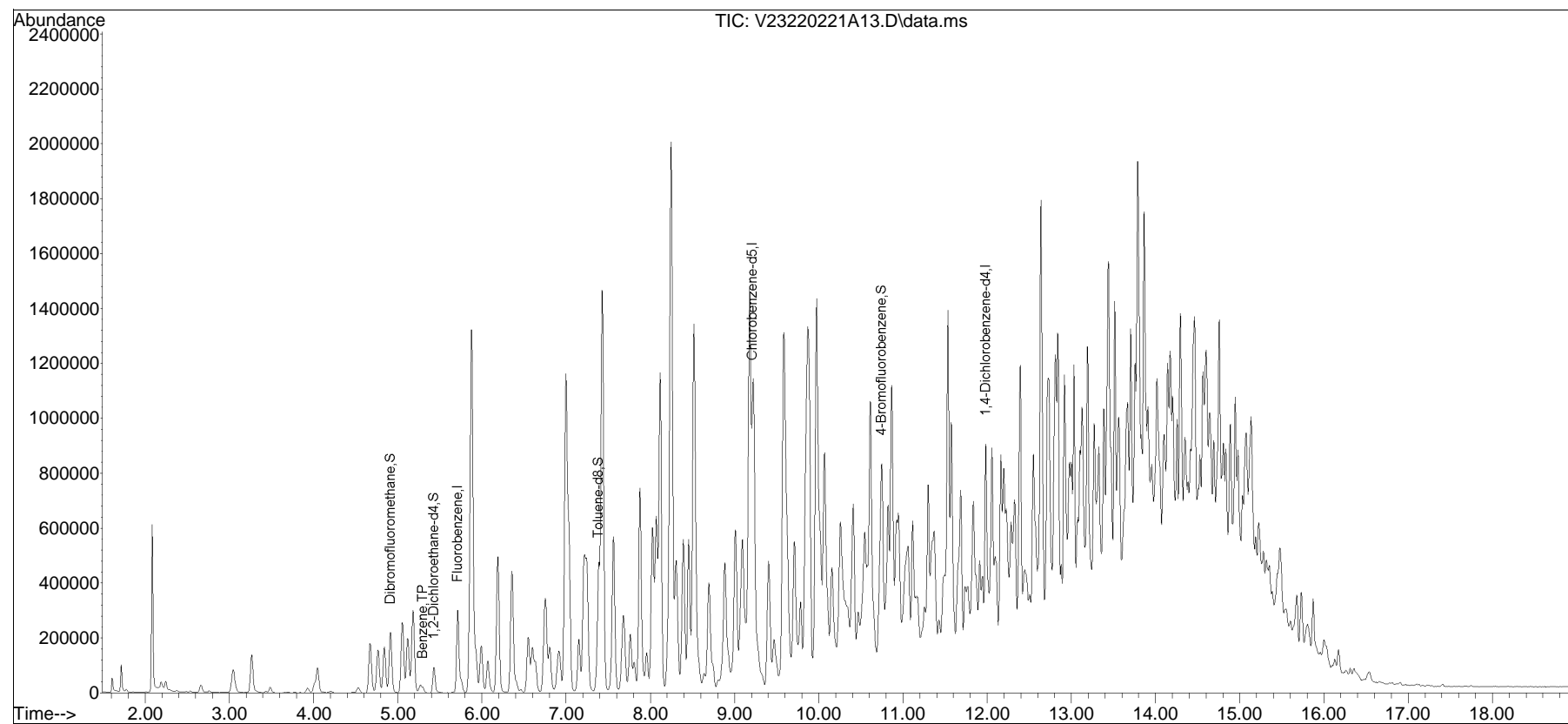


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220221A\
Data File : V23220221A13.D
Acq On : 21 Feb 2022 12:08 pm
Operator : VOA123:JC
Sample : 12207973-05,31H,4.11,5,0.100,,a,r2f
Misc : WG1607642,ICAL18401
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 22 07:55:44 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220221A\V23220221A01.D•

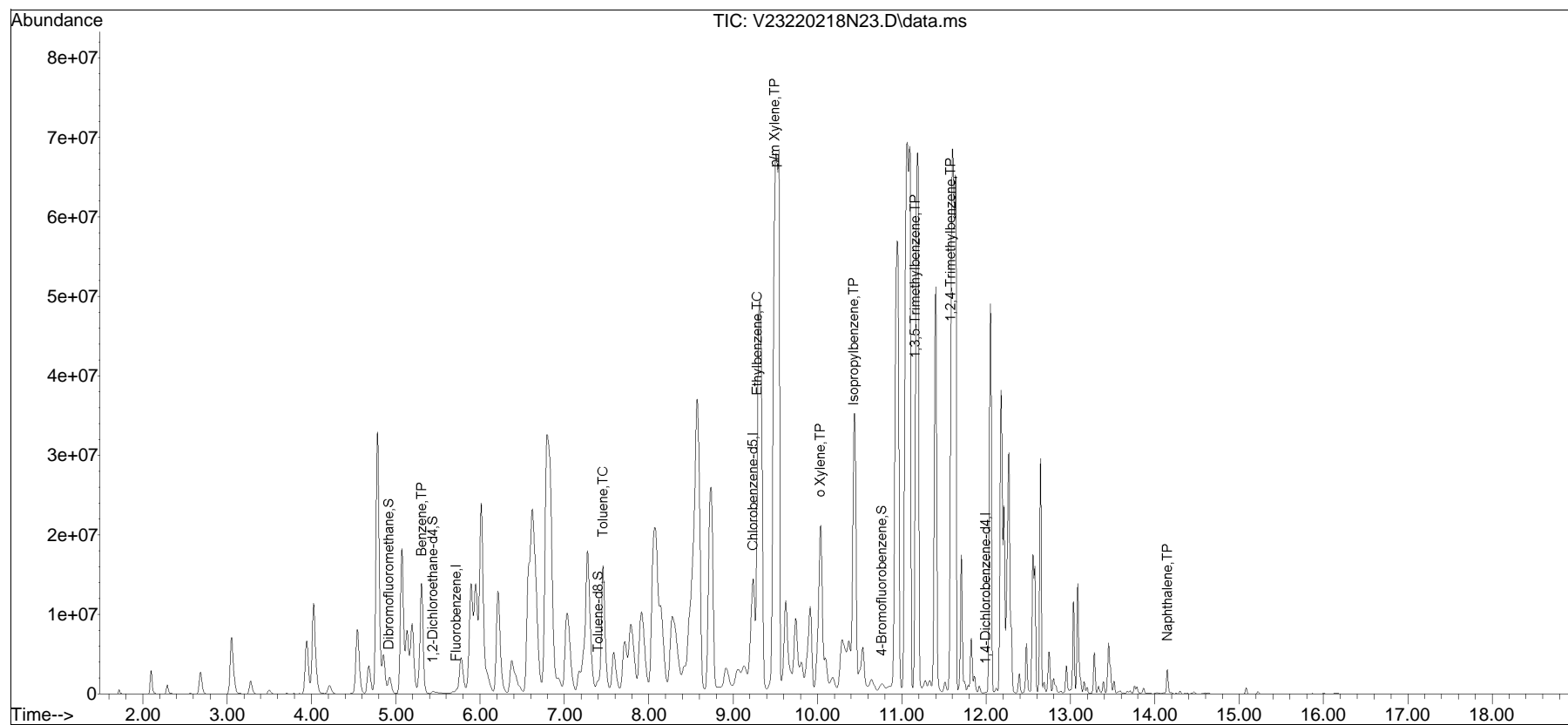


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N23.D
Acq On : 19 Feb 2022 03:21 am
Operator : VOA123:AJK
Sample : 12207973-10,31,5.10,5,,b,r2f
Misc : WG1607679,ICAL18401
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 22 10:46:47 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18N\V23220218N01.D•





ANALYTICAL REPORT

Lab Number:	L2207974
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:	200.00135.005.03
Report Date:	02/22/22

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Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207974-01	PB-84-11-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:30	02/15/22
L2207974-02	PB-84-13-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:40	02/15/22
L2207974-03	PB-84-14-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:50	02/15/22
L2207974-04	PB-84-17-SS01	SOIL	PHILADELPHIA, PA	02/15/22 11:00	02/15/22
L2207974-05	DUP-27	SOIL	PHILADELPHIA, PA	02/15/22 00:00	02/15/22
L2207974-06	FB-220215	WATER	PHILADELPHIA, PA	02/15/22 14:40	02/15/22
L2207974-07	TB-220215	WATER	PHILADELPHIA, PA	02/15/22 00:00	02/15/22

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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.

Volatile Organics

L2207974-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (679%); 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.

L2207974-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); 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.

L2207974-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (331%); 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

L2207974-01, -02 and -04: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

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:



Sebastian Corbin

Title: Technical Director/Representative

Date: 02/22/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-01
 Client ID: PB-84-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:30
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 18:21
 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	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00024	J	mg/kg	0.00052	0.00017	1
Toluene	0.0010		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.078		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00090	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.078		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	679	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
 Client ID: PB-84-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:40
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 18:45
 Analyst: JC
 Percent Solids: 72%

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	0.00068		mg/kg	0.00063	0.00021	1
Toluene	0.0014		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0024		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	89		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-03
 Client ID: PB-84-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:50
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 19:10
 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	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00076	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	0.022		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	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	171	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
 Client ID: PB-84-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 11:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/19/22 19:34
 Analyst: JC
 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	0.0020	0.00020	1
Benzene	0.00028	J	mg/kg	0.00050	0.00017	1
Toluene	0.0015		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	331	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05 D2
 Client ID: DUP-27
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/18/22 03:50
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	530		mg/kg	7.6	1.3	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05 D
 Client ID: DUP-27
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 18:05
 Analyst: AJK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.5	0.15	10
Benzene	1.4		mg/kg	0.38	0.13	10
Toluene	2.8		mg/kg	0.76	0.41	10
Ethylbenzene	19.		mg/kg	0.76	0.11	10
Isopropylbenzene	17.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	130		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	550	E	mg/kg	1.5	0.25	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-06
 Client ID: FB-220215
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:40
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 14:52
 Analyst: LAC

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	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-07
 Client ID: TB-220215
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/16/22 15:15
 Analyst: LAC

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	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/16/22 09:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605848-5					
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	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 21:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-10					
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	88		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/17/22 09:14
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-5					
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	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/19/22 11:15
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04 Batch: WG1607753-5					
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	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605848-3 WG1605848-4								
Methyl tert butyl ether	94		95		63-130	1		20
Benzene	99		100		70-130	1		20
Toluene	96		97		70-130	1		20
Ethylbenzene	94		96		70-130	2		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	98		100		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-3 WG1606362-4								
Methyl tert butyl ether	85		85		66-130	0		30
Benzene	94		90		70-130	4		30
Toluene	96		91		70-130	5		30
Ethylbenzene	97		91		70-130	6		30
Isopropylbenzene	98		92		70-130	6		30
1,3,5-Trimethylbenzene	97		91		70-130	6		30
1,2,4-Trimethylbenzene	96		90		70-130	6		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		89		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	87		86		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-8 WG1606362-9								
Methyl tert butyl ether	86		85		66-130	1		30
Benzene	95		93		70-130	2		30
Toluene	97		95		70-130	2		30
Ethylbenzene	96		94		70-130	2		30
Isopropylbenzene	95		95		70-130	0		30
1,3,5-Trimethylbenzene	96		95		70-130	1		30
1,2,4-Trimethylbenzene	96		94		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	87		87		70-130
Dibromofluoromethane	98		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

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 Batch: WG1607753-3 WG1607753-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	101		102		70-130	1		30
Toluene	105		106		70-130	1		30
Ethylbenzene	106		106		70-130	0		30
Isopropylbenzene	108		108		70-130	0		30
1,3,5-Trimethylbenzene	106		108		70-130	2		30
1,2,4-Trimethylbenzene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	95		97		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-01
 Client ID: PB-84-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:30
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 16:20
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
 Client ID: PB-84-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:40
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 15:57
 Analyst: CMM
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17	J	mg/kg	0.23	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-03
 Client ID: PB-84-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:50
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 15:33
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
 Client ID: PB-84-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 11:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 15:10
 Analyst: CMM
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
 Client ID: DUP-27
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/20/22 14:46
 Analyst: CMM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.34		mg/kg	0.18	0.022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-06
 Client ID: FB-220215
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:40
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/21/22 13:39
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 02/20/22 07:30

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	114		15-120
4-Terphenyl-d14	99		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/19/22 10:37
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 02/18/22 18:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149

METALS



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-01

Date Collected: 02/15/22 10:30

Client ID: PB-84-11-SS01

Date Received: 02/15/22

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	65.9		mg/kg	11.6	0.624	5	02/17/22 15:03	02/18/22 13:35	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
 Client ID: PB-84-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:40
 Date Received: 02/15/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	13.3	0.712	5	02/17/22 15:03	02/18/22 13:40	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-03

Date Collected: 02/15/22 10:50

Client ID: PB-84-14-SS01

Date Received: 02/15/22

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	290		mg/kg	2.33	0.125	1	02/17/22 15:03	02/18/22 00:01	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207974

Project Number: 200.00135.005.03

Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04

Date Collected: 02/15/22 11:00

Client ID: PB-84-17-SS01

Date Received: 02/15/22

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	7.81	J	mg/kg	12.0	0.642	5	02/17/22 15:03	02/18/22 13:45	EPA 3050B	1,6010D	GD



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-05

Date Collected: 02/15/22 00:00

Client ID: DUP-27

Date Received: 02/15/22

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	7.96		mg/kg	2.08	0.111	1	02/17/22 15:03	02/18/22 00:10	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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): 01-05 Batch: WG1606094-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		



Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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): 01-05 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: MS Sample												
Lead, Total	6.38	42.8	27.9	50	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207974

Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: DUP Sample						
Lead, Total	6.38	6.72	mg/kg	5		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-01

Date Collected: 02/15/22 10:30

Client ID: PB-84-11-SS01

Date Received: 02/15/22

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	-	02/16/22 10:45	121,2540G	CG



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-02

Date Collected: 02/15/22 10:40

Client ID: PB-84-13-SS01

Date Received: 02/15/22

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	71.5		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-03
Client ID: PB-84-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 10:50
Date Received: 02/15/22
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	80.8		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**SAMPLE RESULTS**

Lab ID: L2207974-04

Date Collected: 02/15/22 11:00

Client ID: PB-84-17-SS01

Date Received: 02/15/22

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	-	02/16/22 10:45	121,2540G	CG



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
Date Received: 02/15/22
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	-	02/16/22 10:45	121,2540G	CG



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207974

Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: DUP Sample						
Solids, Total	81.1	80.9	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**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(*)
L2207974-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-01B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-01E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-02E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-03E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-04B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-04E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2207974**Project Number:** 200.00135.005.03**Report Date:** 02/22/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207974-05D	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-05E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-06A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06D	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-06E	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-07A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-07B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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.

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

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-Terpeneol

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-Terpeneol; 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



Westborough, MA Mansfield, MA
 TEL: 508-896-9220 TEL: 508-822-9300
 FAX: 508-896-9193 FAX: 508-822-3788

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

Project Information

Project Name: Philadelphia Refinery
AST CLOSURE
 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: *5-DAY*
 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 (see attached for compounds)
 Email results to edd@terrafase.com, William.Schmidt@ransomenv.com, and jjerry@hilcoglobal.com
RUN MAP w/ 82701

Date Rec'd in Lab: *02/16/22* ALPHA Job #: *17207974*

Report information Data Deliverables Billing information
 FAX EMAIL Same as Client info PO #: 3894
 ADEx Add'l Deliverables

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 (4)	SAMPLE HANDLING	TOTAL # BOTTLES					
<input 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"/>	Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please specify below)	5					
<input 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"/>	SHORTLIST 9			5				
<input 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"/>					5			
<input 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"/>						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"/>							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"/>								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 checked="" type="checkbox"/>								

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
07974-01	PB-84-11-5501	2/15	1030	S	TS
-02	PB-84-13-5501		1040	S	TS
-03	PB-84-14-5501		1050	S	TS
-04	PB-84-17-5501		1100	S	TS
-05	DUP-27		-	S	TS
-06	FB-220215		1440	W	TS
-07	TB-220215		-	W	TS

Container Type	G	G	G	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	2/15 1535	<i>[Signature]</i>	2/15/22 15:35
<i>[Signature]</i>	2/15/22	<i>[Signature]</i>	2/15/22
<i>[Signature]</i>	2/15/22	<i>[Signature]</i>	2/15/22

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.

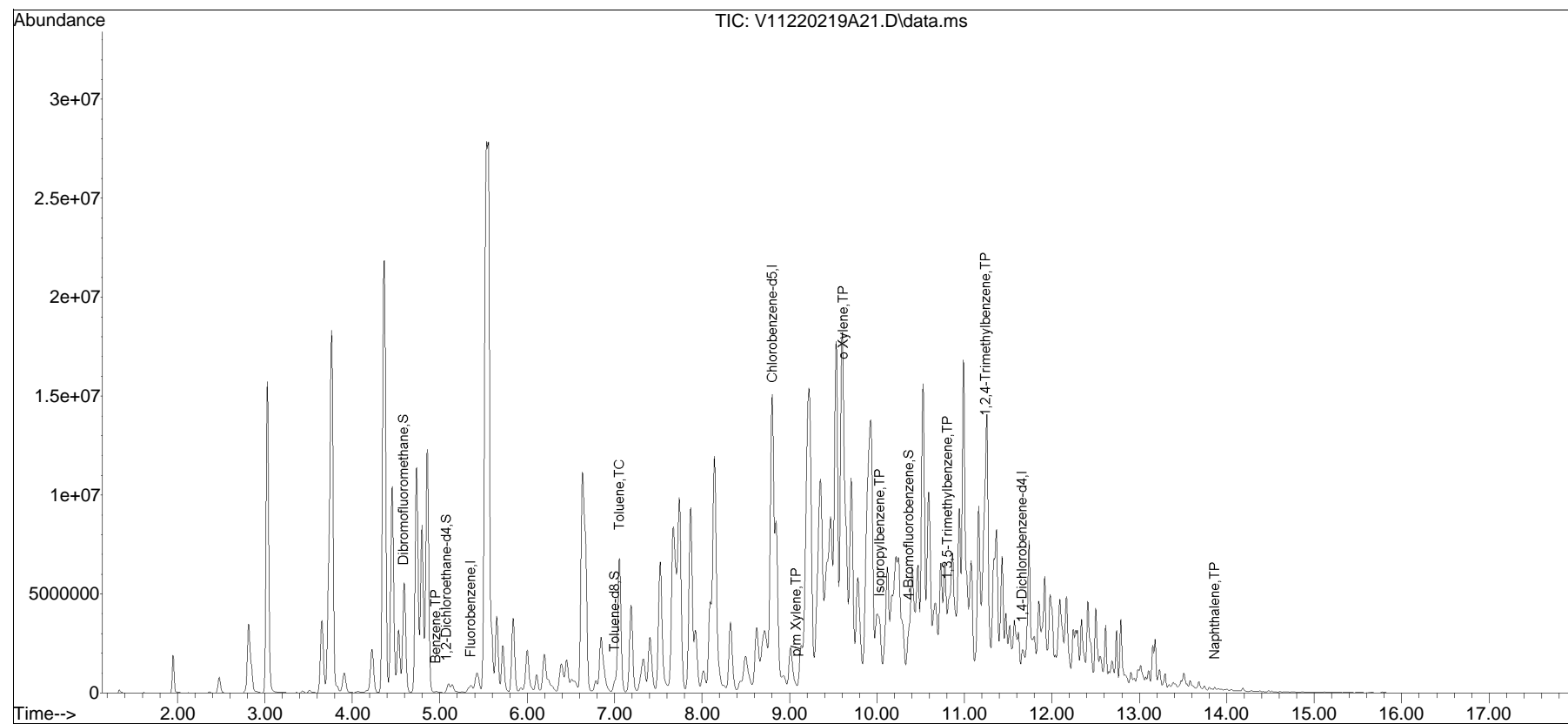
FORM NO: 01-21(14) (Rev. 5-14-13)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A21.D
Acq On : 19 Feb 2022 06:21 pm
Operator : VOA111:JC
Sample : L2207974-01,31,5.89,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Feb 21 12:06:03 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

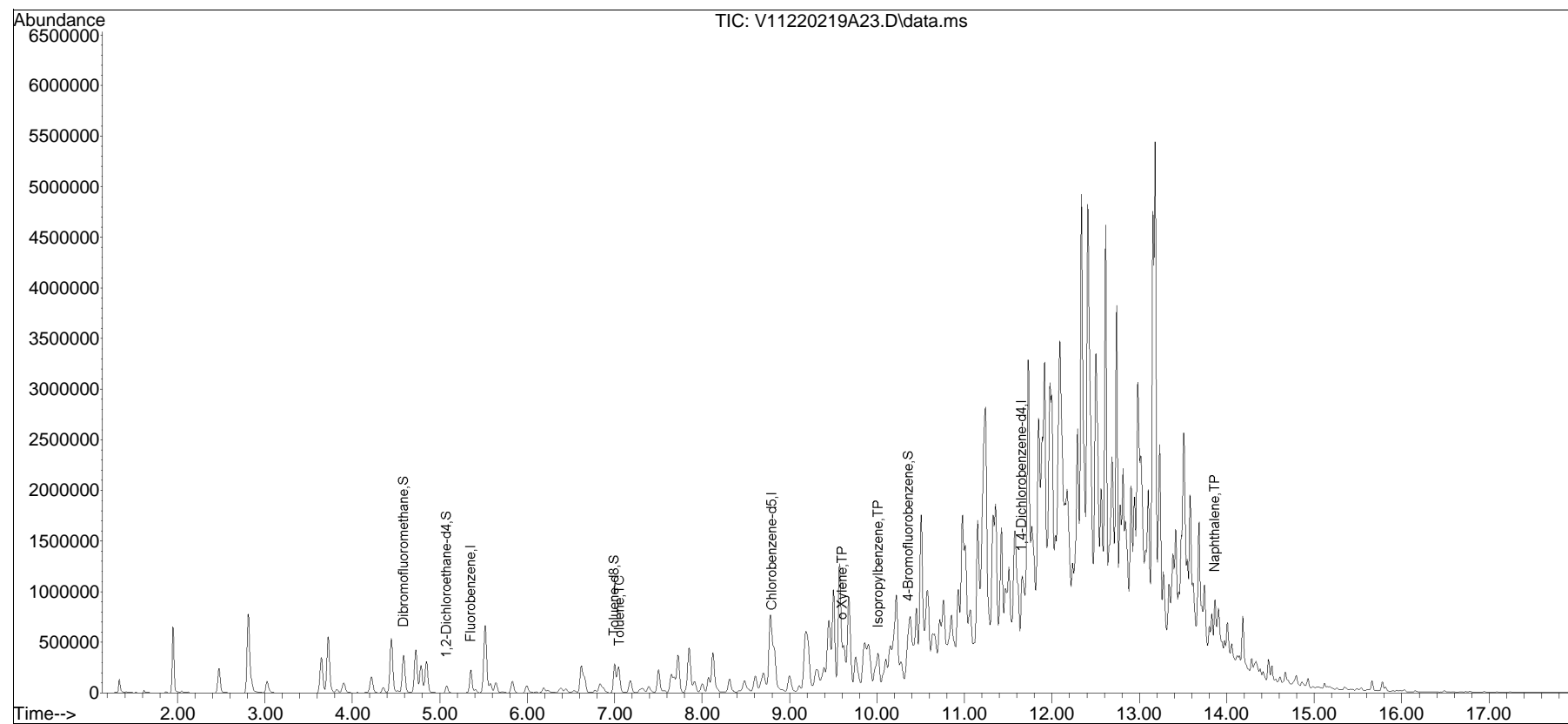


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A23.D
Acq On : 19 Feb 2022 07:10 pm
Operator : VOA111:JC
Sample : L2207974-03,31,4.40,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 21 12:06:47 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

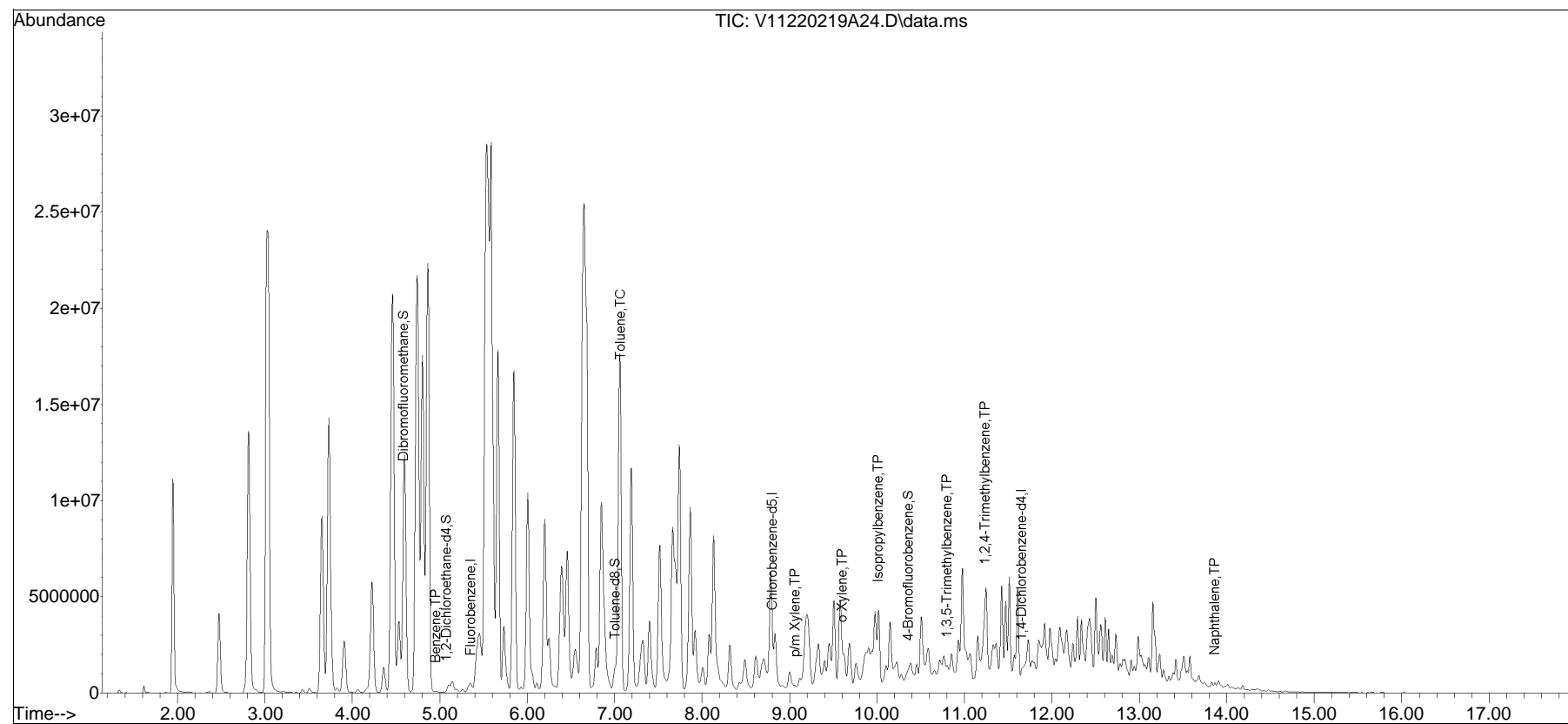


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A24.D
Acq On : 19 Feb 2022 07:34 pm
Operator : VOA111:JC
Sample : L2207974-04,31,6.33,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Feb 21 12:07:09 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•





ANALYTICAL REPORT

Lab Number:	L2208279
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:	200.00135.005.03
Report Date:	02/23/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2208279-01	PB-129-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:30	02/16/22
L2208279-02	PB-129-08-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:45	02/16/22
L2208279-03	PB-129-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:00	02/16/22
L2208279-04	PB-129-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:30	02/16/22
L2208279-05	PB-129-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:30	02/16/22
L2208279-06	PB-129-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:40	02/16/22
L2208279-07	PB-129-13-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:50	02/16/22
L2208279-08	PB-129-16-SS01	SOIL	PHILADELPHIA, PA	02/16/22 11:00	02/16/22
L2208279-09	PB-128-06-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:15	02/16/22
L2208279-10	PB-128-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:30	02/16/22
L2208279-11	PB-128-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:45	02/16/22
L2208279-12	PB-128-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:20	02/16/22
L2208279-13	PB-128-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:45	02/16/22
L2208279-14	PB-128-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:00	02/16/22
L2208279-15	PB-128-14-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:30	02/16/22
L2208279-16	PB-128-15-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:50	02/16/22
L2208279-17	FB-202216-1	WATER	PHILADELPHIA, PA	02/16/22 15:00	02/16/22
L2208279-18	FB-202216-2	WATER	PHILADELPHIA, PA	02/16/22 15:10	02/16/22
L2208279-19	TB-202216	WATER	PHILADELPHIA, PA	02/16/22 00:00	02/16/22
L2208279-20	DUP-28	SOIL	PHILADELPHIA, PA	02/16/22 00:00	02/16/22

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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.

Volatile Organics

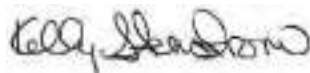
L2208279-13: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. 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.

Total Metals

The WG1606108-3 MS recovery, performed on L2208279-01, is outside the acceptance criteria for lead (54%). A post digestion spike was performed and yielded an unacceptable recovery of 53%. 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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 02/23/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
 Client ID: PB-129-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 11:23
 Analyst: JC
 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	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	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	0.00062	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	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02
 Client ID: PB-129-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 11:48
 Analyst: JC
 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	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	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	0.00067	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00075	1
o-Xylene	ND		mg/kg	0.0013	0.00039	1
Xylenes, Total	ND		mg/kg	0.0013	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
Client ID: PB-129-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:12
Analyst: JC
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	0.0019	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	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	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04 D2
 Client ID: PB-129-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/22/22 23:56
 Analyst: JC
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.0	0.60	20
Benzene	ND		mg/kg	1.5	0.49	20
1,2-Dichloroethane	ND		mg/kg	3.0	0.76	20
Toluene	23.		mg/kg	3.0	1.6	20
1,2-Dibromoethane	ND		mg/kg	1.5	0.87	20
Ethylbenzene	170		mg/kg	3.0	0.42	20
p/m-Xylene	1200		mg/kg	6.0	1.7	20
o-Xylene	440		mg/kg	3.0	0.87	20
Xylenes, Total	1600		mg/kg	3.0	0.87	20
Isopropylbenzene	26.		mg/kg	3.0	0.32	20
1,3,5-Trimethylbenzene	310		mg/kg	6.0	0.57	20
1,2,4-Trimethylbenzene	910	E	mg/kg	6.0	0.99	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04 D
 Client ID: PB-129-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 12:38
 Analyst: JC
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	1000		mg/kg	15	2.5	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05
 Client ID: PB-129-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 13:03
 Analyst: JC
 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	0.0032	0.00032	1
Benzene	0.0028		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	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	0.00070	J	mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
 Client ID: PB-129-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:40
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 13:27
 Analyst: JC
 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	0.0021	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	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00054	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	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	91		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
 Client ID: PB-129-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:50
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 13:53
 Analyst: JC
 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	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	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	0.00055	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	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	70		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08
 Client ID: PB-129-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 11:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 14:18
 Analyst: JC
 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	0.0026	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	0.00063	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09
 Client ID: PB-128-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:15
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 14:42
 Analyst: JC
 Percent Solids: 92%

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	0.00094	J	mg/kg	0.0024	0.00066	1
o-Xylene	0.00035	J	mg/kg	0.0012	0.00034	1
Xylenes, Total	0.0013	J	mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00067	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
 Client ID: PB-128-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 15:07
 Analyst: JC
 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	0.0019	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	0.0031		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00094	J	mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11
 Client ID: PB-128-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 15:32
 Analyst: JC
 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	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00089	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	0.0016	J	mg/kg	0.0018	0.00097	1
1,2-Dibromoethane	ND		mg/kg	0.00089	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.11		mg/kg	0.0036	0.0010	1
o-Xylene	0.18		mg/kg	0.0018	0.00052	1
Xylenes, Total	0.29		mg/kg	0.0018	0.00052	1
Isopropylbenzene	0.00038	J	mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	0.13		mg/kg	0.0036	0.00034	1
1,2,4-Trimethylbenzene	0.22		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-12
 Client ID: PB-128-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:20
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 21:09
 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	0.0033	0.00034	1
Benzene	ND		mg/kg	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0016	J	mg/kg	0.0017	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00049	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0014	J	mg/kg	0.0033	0.00093	1
o-Xylene	0.00060	J	mg/kg	0.0017	0.00048	1
Xylenes, Total	0.0020	J	mg/kg	0.0017	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00039	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0033	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
 Client ID: PB-128-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 17:35
 Analyst: JC
 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	0.0025	0.00025	1
Benzene	0.00022	J	mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.013		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	0.38		mg/kg	0.0025	0.00069	1
o-Xylene	0.29		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.67		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.00062	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
 Client ID: PB-128-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/22/22 23:31
 Analyst: JC
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	ND		mg/kg	0.046	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	ND		mg/kg	0.091	0.050	1
1,2-Dibromoethane	ND		mg/kg	0.046	0.027	1
Ethylbenzene	ND		mg/kg	0.091	0.013	1
p/m-Xylene	0.99		mg/kg	0.18	0.051	1
o-Xylene	0.69		mg/kg	0.091	0.026	1
Xylenes, Total	1.7		mg/kg	0.091	0.026	1
Isopropylbenzene	ND		mg/kg	0.091	0.010	1
1,3,5-Trimethylbenzene	0.58		mg/kg	0.18	0.018	1
1,2,4-Trimethylbenzene	1.4		mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-14
 Client ID: PB-128-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 16:21
 Analyst: JC
 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	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00091	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	ND		mg/kg	0.0018	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00091	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00053	1
Xylenes, Total	ND		mg/kg	0.0018	0.00053	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0036	0.00035	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15
 Client ID: PB-128-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 16:46
 Analyst: JC
 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	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	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	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16
 Client ID: PB-128-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:50
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 17:11
 Analyst: JC
 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	0.0032	0.00032	1
Benzene	0.0037		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	0.012		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00047	1
Ethylbenzene	0.00033	J	mg/kg	0.0016	0.00023	1
p/m-Xylene	0.0040		mg/kg	0.0032	0.00090	1
o-Xylene	0.00093	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0049	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	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	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	76		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
 Client ID: FB-202216-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/21/22 18:08
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/21/22 13:38

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
 Client ID: FB-202216-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 11:11
 Analyst: LAC

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	113		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18
 Client ID: FB-202216-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:10
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/21/22 18:15
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/21/22 13:38

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18
 Client ID: FB-202216-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:10
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 11:34
 Analyst: LAC

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	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-19
 Client ID: TB-202216
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 02/21/22 18:21
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 02/21/22 13:38

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-19
 Client ID: TB-202216
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 02/17/22 11:57
 Analyst: LAC

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	114		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-20
 Client ID: DUP-28
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/21/22 11:52
 Analyst: KDU
 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	0.0026	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	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/21/22 16:10
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/21/22 13:38

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17-19 Batch: WG1606044-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/17/22 08:05
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-19 Batch: WG1606325-5					
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	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12 Batch: WG1607828-5					
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	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	96		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:25
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 20 Batch: WG1607845-5					
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	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,05-11,13-16 Batch: WG1607862-5					
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	90		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/22/22 20:34
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,13 Batch: WG1607863-10					
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	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	95		70-130



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1607863-5					
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	90		70-130
Dibromofluoromethane	96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17-19 Batch: WG1606044-2									
1,2-Dibromoethane	107		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-19 Batch: WG1606325-3 WG1606325-4								
Methyl tert butyl ether	100		110		63-130	10		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		110		70-130	10		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		115		70-130	4		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	109		115		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		106		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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 Batch: WG1607828-3 WG1607828-4								
Methyl tert butyl ether	88		91		66-130	3		30
Benzene	101		100		70-130	1		30
1,2-Dichloroethane	91		92		70-130	1		30
Toluene	102		102		70-130	0		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	101		101		70-130	0		30
p/m-Xylene	106		106		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	103		101		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	98		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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: WG1607845-3 WG1607845-4								
Methyl tert butyl ether	82		79		66-130	4		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	83		80		70-130	4		30
Toluene	86		83		70-130	4		30
1,2-Dibromoethane	102		99		70-130	3		30
Ethylbenzene	82		80		70-130	2		30
p/m-Xylene	89		86		70-130	3		30
o-Xylene	89		85		70-130	5		30
Isopropylbenzene	80		77		70-130	4		30
1,3,5-Trimethylbenzene	82		80		70-130	2		30
1,2,4-Trimethylbenzene	81		79		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	92		92		70-130
4-Bromofluorobenzene	84		85		70-130
Dibromofluoromethane	100		99		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,05-11,13-16 Batch: WG1607862-3 WG1607862-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1607863-3 WG1607863-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,13 Batch: WG1607863-8 WG1607863-9								
Methyl tert butyl ether	90		92		66-130	2		30
Benzene	102		100		70-130	2		30
1,2-Dichloroethane	93		93		70-130	0		30
Toluene	103		102		70-130	1		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	104		104		70-130	0		30
Isopropylbenzene	106		103		70-130	3		30
1,3,5-Trimethylbenzene	104		102		70-130	2		30
1,2,4-Trimethylbenzene	103		101		70-130	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	89		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	97		97		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
 Client ID: PB-129-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 02:54
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	82		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	84		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02
 Client ID: PB-129-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 00:56
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	73		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	72		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
 Client ID: PB-129-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 08:00
 Analyst: CMM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	70		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	62		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04
 Client ID: PB-129-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 02:07
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.17	0.021	1
Fluorene	0.027	J	mg/kg	0.17	0.016	1
Phenanthrene	0.055	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	0.021	J	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	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05
 Client ID: PB-129-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 04:28
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	77		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
 Client ID: PB-129-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:40
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 03:17
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	78		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
 Client ID: PB-129-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:50
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 01:20
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	85		30-120
4-Terphenyl-d14	82		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08
 Client ID: PB-129-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 11:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 01:43
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.020	1
Fluorene	ND		mg/kg	0.17	0.016	1
Phenanthrene	ND		mg/kg	0.10	0.020	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	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	78		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09
 Client ID: PB-128-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:15
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 06:02
 Analyst: CMM
 Percent Solids: 92%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.23		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
 Client ID: PB-128-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 05:15
 Analyst: CMM
 Percent Solids: 97%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.26		mg/kg	0.17	0.020	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	66		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11
 Client ID: PB-128-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 04:52
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	0.090	J	mg/kg	0.17	0.021	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-12
 Client ID: PB-128-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:20
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 04:04
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:24

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	0.020	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
 Client ID: PB-128-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:45
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 03:41
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.75		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-14
 Client ID: PB-128-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 07:36
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15
 Client ID: PB-128-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:30
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 02:30
 Analyst: CMM
 Percent Solids: 96%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16
 Client ID: PB-128-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:50
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 08:23
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
 Client ID: FB-202216-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/22/22 12:33
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 02/21/22 23:19

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	63		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18
 Client ID: FB-202216-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:10
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 02/22/22 12:50
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 02/21/22 23:19

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	65		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	65		41-149



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-20
 Client ID: DUP-28
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
 Date Received: 02/16/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270D
 Analytical Date: 02/22/22 05:39
 Analyst: CMM
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	40		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
Analytical Date: 02/21/22 23:46
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-16,20 Batch: WG1607329-1					
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	84		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	90		18-120



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 02/22/22 10:39
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/21/22 23:19

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 17-18 Batch: WG1607486-1					
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	55		15-120
4-Terphenyl-d14	59		41-149



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-16,20 Batch: WG1607329-2 WG1607329-3								
Naphthalene	67		64		40-140	5		50
Fluorene	69		65		40-140	6		50
Phenanthrene	68		66		40-140	3		50
Anthracene	70		68		40-140	3		50
Pyrene	69		66		35-142	4		50
Benzo(a)anthracene	65		62		40-140	5		50
Chrysene	68		64		40-140	6		50
Benzo(b)fluoranthene	65		60		40-140	8		50
Benzo(a)pyrene	60		56		40-140	7		50
Benzo(ghi)perylene	64		59		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	62		58		23-120
2-Fluorobiphenyl	69		65		30-120
4-Terphenyl-d14	64		63		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 17-18 Batch: WG1607486-2 WG1607486-3								
Naphthalene	52		54		40-140	4		40
Fluorene	55		58		40-140	5		40
Phenanthrene	54		55		40-140	2		40
Anthracene	55		56		40-140	2		40
Pyrene	58		57		26-127	2		40
Benzo(a)anthracene	56		55		40-140	2		40
Chrysene	53		58		40-140	9		40
Benzo(b)fluoranthene	61		56		40-140	9		40
Benzo(a)pyrene	52		52		40-140	0		40
Benzo(ghi)perylene	58		57		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	58		59		23-120
2-Fluorobiphenyl	55		56		15-120
4-Terphenyl-d14	60		59		41-149



METALS



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
 Client ID: PB-129-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:30
 Date Received: 02/16/22
 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	3.99		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 20:08	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02

Date Collected: 02/16/22 08:45

Client ID: PB-129-08-SS01

Date Received: 02/16/22

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	4.34		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:32	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-03

Date Collected: 02/16/22 09:00

Client ID: PB-129-09-SS01

Date Received: 02/16/22

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	3.60		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:37	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04

Date Collected: 02/16/22 09:30

Client ID: PB-129-10-SS01

Date Received: 02/16/22

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	3.98		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:42	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05

Date Collected: 02/16/22 10:30

Client ID: PB-129-11-SS01

Date Received: 02/16/22

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	4.77		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:56	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
 Client ID: PB-129-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:40
 Date Received: 02/16/22
 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	3.99		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 21:01	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07

Date Collected: 02/16/22 10:50

Client ID: PB-129-13-SS01

Date Received: 02/16/22

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	2.65		mg/kg	1.97	0.106	1	02/18/22 09:25	02/18/22 21:06	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08

Date Collected: 02/16/22 11:00

Client ID: PB-129-16-SS01

Date Received: 02/16/22

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	3.41		mg/kg	1.99	0.106	1	02/18/22 09:25	02/18/22 21:11	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09

Date Collected: 02/16/22 12:15

Client ID: PB-128-06-SS01

Date Received: 02/16/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.93		mg/kg	2.09	0.112	1	02/18/22 09:25	02/18/22 21:16	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10

Date Collected: 02/16/22 12:30

Client ID: PB-128-07-SS01

Date Received: 02/16/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.59		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:21	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11

Date Collected: 02/16/22 12:45

Client ID: PB-128-09-SS01

Date Received: 02/16/22

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	3.72		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:26	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-12

Date Collected: 02/16/22 13:20

Client ID: PB-128-10-SS01

Date Received: 02/16/22

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	3.28		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:31	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13

Date Collected: 02/16/22 13:45

Client ID: PB-128-11-SS01

Date Received: 02/16/22

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	5.49		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:36	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-14

Date Collected: 02/16/22 14:00

Client ID: PB-128-12-SS01

Date Received: 02/16/22

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	5.70		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:41	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15

Date Collected: 02/16/22 14:30

Client ID: PB-128-14-SS01

Date Received: 02/16/22

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	5.42		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:55	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16

Date Collected: 02/16/22 14:50

Client ID: PB-128-15-SS01

Date Received: 02/16/22

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	13.5		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 22:00	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-17

Date Collected: 02/16/22 15:00

Client ID: FB-202216-1

Date Received: 02/16/22

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	02/18/22 09:09	02/21/22 11:28	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-18

Date Collected: 02/16/22 15:10

Client ID: FB-202216-2

Date Received: 02/16/22

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	02/18/22 09:09	02/21/22 11:33	EPA 3005A	1,6020B	SV



Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2208279

Project Number: 200.00135.005.03

Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-20

Date Collected: 02/16/22 00:00

Client ID: DUP-28

Date Received: 02/16/22

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	7.64		mg/kg	2.05	0.110	1	02/18/22 09:25	02/18/22 22:05	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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): 17-18 Batch: WG1605423-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 10:12	1,6020B	SV

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): 01-16,20 Batch: WG1606108-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	02/18/22 09:25	02/18/22 19:58	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1605423-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 Batch: WG1606108-2 SRM Lot Number: D113-540								
Lead, Total	80		-		72-128	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MS Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1605423-3 WG1605423-4 QC Sample: L2208291-06 Client ID: MS Sample												
Lead, Total	ND	530	539.2	102		586.6	111		75-125	8		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-3 QC Sample: L2208279-01 Client ID: PB-129-07-SS01												
Lead, Total	3.99	42.7	27.1	54	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2208279

Report Date: 02/23/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-4 QC Sample: L2208279-01 Client ID: PB-129-07-SS01						
Lead, Total	3.99	4.50	mg/kg	12		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-01

Date Collected: 02/16/22 08:30

Client ID: PB-129-07-SS01

Date Received: 02/16/22

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	95.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02
Client ID: PB-129-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 08:45
Date Received: 02/16/22
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	95.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-03

Date Collected: 02/16/22 09:00

Client ID: PB-129-09-SS01

Date Received: 02/16/22

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	94.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-04

Date Collected: 02/16/22 09:30

Client ID: PB-129-10-SS01

Date Received: 02/16/22

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	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-05

Date Collected: 02/16/22 10:30

Client ID: PB-129-11-SS01

Date Received: 02/16/22

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	95.3		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-06

Date Collected: 02/16/22 10:40

Client ID: PB-129-12-SS01

Date Received: 02/16/22

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	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-07

Date Collected: 02/16/22 10:50

Client ID: PB-129-13-SS01

Date Received: 02/16/22

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	95.4		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-08

Date Collected: 02/16/22 11:00

Client ID: PB-129-16-SS01

Date Received: 02/16/22

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	95.9		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-09

Date Collected: 02/16/22 12:15

Client ID: PB-128-06-SS01

Date Received: 02/16/22

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	92.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-10

Date Collected: 02/16/22 12:30

Client ID: PB-128-07-SS01

Date Received: 02/16/22

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	96.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-11

Date Collected: 02/16/22 12:45

Client ID: PB-128-09-SS01

Date Received: 02/16/22

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	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-12

Date Collected: 02/16/22 13:20

Client ID: PB-128-10-SS01

Date Received: 02/16/22

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	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-13

Date Collected: 02/16/22 13:45

Client ID: PB-128-11-SS01

Date Received: 02/16/22

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	95.5		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-14

Date Collected: 02/16/22 14:00

Client ID: PB-128-12-SS01

Date Received: 02/16/22

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	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-15

Date Collected: 02/16/22 14:30

Client ID: PB-128-14-SS01

Date Received: 02/16/22

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	95.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-16

Date Collected: 02/16/22 14:50

Client ID: PB-128-15-SS01

Date Received: 02/16/22

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	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**SAMPLE RESULTS**

Lab ID: L2208279-20

Date Collected: 02/16/22 00:00

Client ID: DUP-28

Date Received: 02/16/22

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	95.0		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI



Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**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(*)
L2208279-01A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-01B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-01F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-02A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-02B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-02F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-03A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-03B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-03F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-04A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-04B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-04C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-04D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-04F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-05A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-05B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-05F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-06B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-06F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-07A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-07B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-07F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-08A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-08B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-08F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-09B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-09F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-10B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-10F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-11A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-11B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-11F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-12B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-12F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2208279-13B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-13F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-14B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-14F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-15A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-15B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-15F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-16B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-16F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-17A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-18A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS**Lab Number:** L2208279**Project Number:** 200.00135.005.03**Report Date:** 02/23/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-18B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-19A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19C	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-19D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-20A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-20B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-20F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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.

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

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-Terpeneol

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-Terpeneol; 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 2

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
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

Project Information

Project Name: Philadelphia Refinery
AST Closure

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: 5-DAY
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 edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 2/17/22

ALPHA Job #: 62208279

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:

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)
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<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"/>
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SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
08279-11	PB-128-09-SS01	2/16	1245	S	TS
-12	PB-128-10-SS01		1320	S	
-13	PB-128-11-SS01		1345	S	
-14	PB-128-12-SS01		1400	S	
75	PB-128-14-SS01		1430	S	
76	PB-128-15-SS01		1450	S	
77	FB-220216-1		1500	W	
78	FB-220216-2		1510	W	
79	TB-220216		-	W	
80	DUP-28		-	S	

Container Type	G	G	G	-	-	-	-	-	-	-	-	-
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>	2/16 1522	<i>[Signature]</i>	2/16 1522
<i>[Signature]</i>	2/16 1800	<i>[Signature]</i>	2/16 1800
<i>[Signature]</i>	2/16 2100	<i>[Signature]</i>	2/16/22 2100

[Handwritten signatures and dates]
 2/17/22 0155
 2/17/22 2355

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

naphthalene, 1,2,4-
Trimethylbenzene

naphthalene, 1,2,4-



ANALYTICAL REPORT

Lab Number:	L2209675
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-DELINEAT
Project Number:	200.00135.005.03
Report Date:	03/02/22

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-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209675-01	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/23/22 15:00	02/23/22

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

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-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Case Narrative (continued)

Report Submission

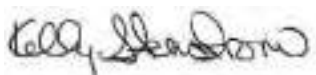
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L2209675-01: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

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: 03/02/22

METALS



Project Name: PHILADELPHIA REFINERY-DELINEAT

Lab Number: L2209675

Project Number: 200.00135.005.03

Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2209675-01

Date Collected: 02/23/22 15:00

Client ID: PB-29-28-0.0-0.5

Date Received: 02/23/22

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	92.3		mg/kg	11.9	0.636	5	03/01/22 07:00	03/02/22 18:40	EPA 3050B	1,6010D	MC



Project Name: PHILADELPHIA REFINERY-DELINEAT

Lab Number: L2209675

Project Number: 200.00135.005.03

Report Date: 03/02/22

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 Batch: WG1609872-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	03/01/22 07:00	03/01/22 14:18	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT

Project Number: 200.00135.005.03

Lab Number: L2209675

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1609872-2 SRM Lot Number: D113-540								
Lead, Total	100		-		72-128	-		



Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

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 QC Batch ID: WG1609872-3 QC Sample: L2209668-02 Client ID: MS Sample												
Lead, Total	103	45.7	110	15	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT

Project Number: 200.00135.005.03

Lab Number: L2209675

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-4 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	56.9	mg/kg	58	Q	20

**Lab Serial Dilution
Analysis
Batch Quality Control**

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-6 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	141	mg/kg	37	Q	20



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2209675-01
Client ID: PB-29-28-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/23/22 15:00
Date Received: 02/23/22
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	-	02/24/22 09:40	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT

Project Number: 200.00135.005.03

Lab Number: L2209675

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1608759-1 QC Sample: L2209668-01 Client ID: DUP Sample						
Solids, Total	80.7	80.2	%	1		20

Project Name: PHILADELPHIA REFINERY-DELINEAT**Lab Number:** L2209675**Project Number:** 200.00135.005.03**Report Date:** 03/02/22**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	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2209675-01A	Glass 60ml unpreserved split	A	NA		2.4	Y	Absent		PB-TI(180)
L2209675-01B	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY-DELINEAT**Lab Number:** L2209675**Project Number:** 200.00135.005.03**Report Date:** 03/02/22

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-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

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.

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-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

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-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

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-Terpeneol

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-Terpeneol; 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

Project Information

Project Name: PES Refinery - Delineation
SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 1240T 17833

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: **5-DAY** Time:

Westborough, MA Mansfield, MA
TEL: 508-838-9220 TEL: 508-822-9300
FAX: 508-838-9193 FAX: 508-822-3268

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 per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and ljeray@hilcoglobal.com

Date Rec'd in Lab: 1 **2/24/22**

ALPHA Job #: **L2209675**

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

PADEP Storage Tank Sampling

ANALYSIS

Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene												
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ANALYTICAL REPORT

Lab Number:	L2209795
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	03/29/22

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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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209795-01	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2209795-02	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2209795-02.

Report Submission

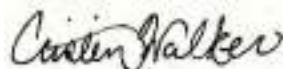
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2209795-01D and -02: The sample was analyzed with the method required holding time exceeded.

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: 03/29/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-01 D
 Client ID: PB-33-05R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:10
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/28/22 16:38
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	6.6		mg/kg	0.060	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-02
 Client ID: PB-29-03R-14.0-14.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:55
 Date Received: 02/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 02/28/22 17:05
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.46		mg/kg	0.10	0.010	1
Benzene	3.0		mg/kg	0.026	0.0085	1
Toluene	0.11		mg/kg	0.051	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1610267-5					
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

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1610267-3 WG1610267-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130



INORGANICS & MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-01
Client ID: PB-33-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:10
Date Received: 02/07/22
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	81.5		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI



Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-02
Client ID: PB-29-03R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:55
Date Received: 02/07/22
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	90.7		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1608668-1 QC Sample: L2209081-01 Client ID: DUP Sample						
Solids, Total	78.7	77.7	%	1		20

Project Name: PES REFINERY-AST CLOSURE**Lab Number:** L2209795**Project Number:** 200.00135.005.03**Report Date:** 03/29/22**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(*)
L2209795-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L2209795-02A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-02B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02D	Plastic 2oz unpreserved for TS	B	NA		3.8	Y	Absent		TS(7)

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

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.

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

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: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

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-Terpeneol

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-Terpeneol; 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.

L2209795 2/23/22 KC

CHAIN OF CUSTODY

PAGE 1 OF 2



Westborough, MA
TEL: 508-895-9220
FAX: 508-895-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~
AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 1 **2/8/22**

ALPHA Job #: ~~L2209795~~ **2209795**

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 project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

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)

5-DAY

Due Date: _____ Time: _____

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

PADEP Storage Tank Sampling: _____

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzene(a)pyrene	Benzofluoranthene	Naphthalene (8760)	PAHs - Benzene's	1,2-DBA (PREVIOUS EDITION)	PA-8260HLW-BTEX	Total Solids
01	PB-204-11R-6.0-6.5	2/7	1030	S	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 type="checkbox"/>
02	PB-204-11R-14.0-14.5		1040			<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"/>
03	PB-204-01R-0.0-0.5		1130			<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"/>
04	PB-204-01R-6.0-6.5		1140			<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"/>
05	PB-204-01R-14.0-14.5		1150			<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"/>
06	PB-204-06R-0.0-0.5		1220			<input type="checkbox"/>	<input checked="" 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"/>
07	PB-204-06R-6.0-6.5		1225			<input type="checkbox"/>	<input checked="" 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"/>
08	PB-204-06R-14.0-14.5		1230			<input type="checkbox"/>	<input checked="" 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"/>
09	PB-33-05R-6.0-6.5		1300			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	PB-33-05R-14.0-14.5		1310			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials
01	PB-204-11R-6.0-6.5	2/7	1030	S	TS

Container Type	Preservative
-	-

Relinquished By: *[Signature]*

Date/Time: 2/7 1515

Received By: *[Signature]*

Date/Time: 2/7 1515

Yvonne Green

2/7/22 2030

Yvonne Green

2/7/22 2030

2/23/22 2330


FORM NO. 11-01-04 (Rev. 9-2011-02)

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.

L2209795 KL 2/23/22

CHAIN OF CUSTODY

PAGE 2 OF 2



Westborough, MA Mansfield, MA
 TEL: 508-298-8220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Defination~~ **FAST CLOSURE**

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Date Rec'd in Lab: 1 **2/18/22**

ALPHA Job #: ~~L2206339~~

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 per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

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: **S-DAY** Time: _____

Regulatory Requirements/Report Limits

State/Fed Program: _____ Criteria: _____

PADEP Storage Tank Sampling: _____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										SAMPLE HANDLING	TOTAL # BOTTLES		
		Date	Time			Lead	Benzene	Toluene	Benz(a)pyrene	Benz(b)fluoranthene	Naphthalene (8760)	Fluorene	1,2-DBA (Dibenz(a,h)anthracene)	PA-8260HLW-BTEX	Total Solids				
06339-11	PB-29-02R-0.0-0.5	2/7	1405	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"/>		
12	PB-29-02R-6.0-6.5		1415			<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"/>		
13	PB-29-02R-14.0-14.5		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"/>	<input type="checkbox"/>		HOLD
14	PB-29-03R-6.0-6.5		1445			<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"/>		
09795-82 15	PB-29-03R-14.0-14.5		1455			<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		HOLD
16	FB-220207-1		1700			<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"/>		
17	FB-220207-2		1560			<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"/>		
18	TB-220207		-			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do

(Phase specify below)

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.

Relinquished By: _____

Date/Time: **2/7/22 1800**

Received By: _____

Date/Time: **2/7/22 2330**