

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

Storage Tank Facility ID #: 51-33624

Consultant Name: Terraphase Engineering

Consultant Mailing Address: 100 Canal Pointe Boulevard, Suite 110, Princeton, NJ 08540

Consultant Email Address: kevin.long@terrphase.com

Responsible Party Name: Philadelphia Energy Solutions Refining and Marketing LLC

Responsible Party Mailing Address: 111 S. Wacker Dr Suite 3000, Chicago, IL 60606

Responsible Party Email Address: jjeray@hilcoglobal.com

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

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

(check all that apply to the enclosed submission)

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

FINAL

Site Characterization Report - Tank Group 06

Former Philadelphia Energy Solutions Refinery
3144 West Passyunk Avenue
Philadelphia, Pennsylvania
Incident #58434

Prepared for

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

Prepared by

Terraphase Engineering Inc.
100 Canal Pointe Boulevard, Suite 110
Princeton, New Jersey 08540

June 2023

Project Number P044.001.002



Contents

Acronyms and Abbreviations.....	v
Certification.....	vii
1 Introduction.....	1
2 Site Setting.....	4
2.1 Operational History/Usage of the Tanks	4
2.2 Topography.....	4
2.3 Regional Geology and Hydrogeology.....	4
2.4 Local Geology and Hydrogeology	5
2.5 Surface Water	6
3 Tank Infrastructure and Removal.....	7
4 Selection of Standard and Potential Exposure	8
4.1 Selected Standard.....	8
4.2 Institutional and Engineering Controls	8
4.3 Land and Groundwater Use.....	9
4.4 Scenarios for Potential Human Exposure	9
4.4.1 Potential On-Site Exposures	10
4.4.2 Potential Off-Site Exposures.....	11
4.5 Species and Habitats of Concern	11
5 Site Assessment and Site Characterization	12
5.1 Site Assessment	12
5.2 Site Characterization.....	14
5.3 Sampling Results.....	15
5.4 Adequacy of Sampling and Characterization.....	16
5.4.1 GP R 270 (Recovered Oil).....	16
5.4.2 GP R 272 (Recovered Oil).....	17
5.4.3 GP R 273 (Vacuum Gas Oil).....	17
5.4.4 GP R 276 (Light Naphtha)	18
5.4.5 GP R 281 (Vacuum Gas Oil).....	18
5.4.6 GP R 282 (Vacuum Gas Oil).....	19
5.4.7 GP R 284 (Vacuum Gas Oil).....	19
5.4.8 GP R 285 (Light Naphtha)	19
5.4.9 GP R 286 (Heavy Naphtha)	20
5.4.10 GP R 973 (Caustic, Fresh).....	20
5.4.11 GP R 1039 (#6 Fuel Oil) and GP R 1038 (Alky Slurry)	20



5.4.12 GP R 1047 (Caustic, Fresh).....	21
5.4.13 GP R 1101 (Recovered Oil).....	21
6 Summary and Conclusions	22
7 References.....	24

Tables

- 1 Aboveground Storage Tank Details
- 2 Soil Screening Summary (Tank Group 06 Area)
- 3 Scenarios for Potential Human Exposure
- 4 COPCs Identified in Soil in Proximity to Tank Group 06 ASTs

Figures

- 1 Facility Location
- 2 Site Location
- 3 Site Layout (Tank Group 06)
- 4 Interpreted Groundwater Flow (Tank Group 06)
- 5 Soil Sample Locations and Monitoring Wells (Tank Group 06)
- 6A Soil Sample Results, Tank Group 06 (AST GP R 270)
- 6B Soil Sample Results, Tank Group 06 (AST GP R 272)
- 6C Soil Sample Results, Tank Group 06 (AST GP R 273)
- 6D Soil Sample Results, Tank Group 06 (AST GP R 276)
- 6E Soil Sample Results, Tank Group 06 (AST GP R 281)
- 6F Soil Sample Results, Tank Group 06 (AST GP R 282)
- 6G Soil Sample Results, Tank Group 06 (AST GP R 285)
- 6H Soil Sample Results, Tank Group 06 (AST GP R 284)
- 6I Soil Sample Results, Tank Group 06 (AST GP R 286)
- 6J Soil Sample Results, Tank Group 06 (AST GP R 973)
- 6K Soil Sample Results, Tank Group 06 (AST GP R 1101)
- 6L Soil Sample Results, Tank Group 06 (AST GP R 1038 and GP R 1039)
- 6M Soil Sample Results, Tank Group 06 (AST GP R 1047)
- 7A Unconfined Groundwater Sampling Results (Tank Group 06)
- 7B Deep Groundwater Sampling Results (Tank Group 06)



Appendices

- A Select Evergreen Figures
- B Tank Registration Amendment Forms
- C Tank Closure Reports
- D Individual Parcel Map
- E PNDI
- F Soil Boring Logs
- G Release Notification
- H Site Assessment and Historical Soil and Groundwater Results
- I Laboratory Reports



Acronyms and Abbreviations

1,2,4-TMB	1,2,4-trimethylbenzene
1,3,5-TMB	1,3,5-trimethyl benzene
2020 Amendment	2020 First Amendment to that Agreement
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 7 RIR	Remedial Investigation Report, Area of Interest 7
AST	aboveground storage tank
bgs	below ground surface
B[a]P	benzo(a)pyrene
ChemQuants	ChemQuants, LLC
CO&A	Consent Order and Agreement among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM dated August 14, 2012
COC	constituents of concern
COPC	constituents of potential concern
Evergreen	Evergreen Resources Group, LLC; includes Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC and Evergreen collectively referred to as “Evergreen”
Facility	former Philadelphia Energy Solutions refinery facility
ft	feet or foot
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSC	medium-specific concentrations
MTBE	methyl tert-butyl ether
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
PID	photoionization detector
PNDI	Pennsylvania Natural Diversity Inventory
RAP	Remedial Action Plan
Report	<i>Site Characterization Report</i>
the Site	Tank Group 06 location within the former Philadelphia Energy Solutions refinery facility
SHS	Statewide Health Standard
SSS	Site-Specific Standard



Terraphase	Terraphase Engineering Inc.
USEPA	United States Environmental Protection Agency
VMS	vapor mitigation systems
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:

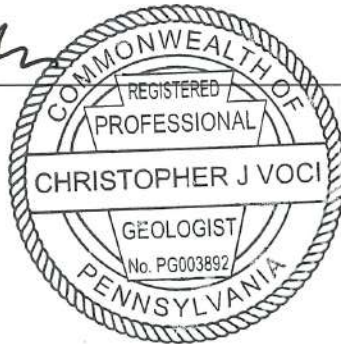
Interpretation of geologic and hydrogeologic data shall be prepared by a professional geologist licensed in this Commonwealth.

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 the attached report entitled, *Site Characterization Report – Tank Group 06, Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated June 2023.

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



Christopher Voci, PG
Principal Geologist



June 30, 2023

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 06 (the “Site”) which is located within the Former Philadelphia Energy Solutions refinery facility (the “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 Consent Order and Agreement among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM dated August 14, 2012 (CO&A) and the 2020 First Amendment to that Agreement (2020 Amendment).

The Site Assessment and Site Characterization activities described in this Report were performed in accordance with the applicable provisions of The Storage Tank and Spill Prevention Act (Act 32), Title 25 of the Pennsylvania Code (25 PA Code) Chapter 245 (Subchapter D), and Terraphase’s (2021) *Aboveground Storage Tank Closure Work Plan* (Work Plan), which was approved by the PADEP on April 23, 2021. As discussed in the Work Plan, closure of the aboveground 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 nine 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 release(s) 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

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



were sampled to characterize the nature and extent of contaminants and assess the need for remedial or interim actions.

Tank Group 06 (**Figure 2**) is located within a larger area of the Facility referred to as the Girard Point Refinery. Evergreen is currently engaged in characterization and remediation work at the Facility under the Pennsylvania One Cleanup Program under the oversight of the PADEP and the United States Environmental Protection Agency (USEPA; eFACTS PF No. 757108). In its associated documentation, Evergreen has identified the Tank Group 06 portions of the Girard Point Refinery as Area of Interest (AOI) 7. The specific ASTs addressed in this Report are shown on **Figure 3** and listed in **Table 1**.

This Report presents the results of the Site Assessment and Site Characterization activities performed following the identification of potential releases to the environment during the demolition and removal of the Tank Group 06 ASTs. At some ASTs, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil. At all but one of the tanks with concrete foundations, holes were cored through the concrete in an attempt to allow for soil sampling, but the space beneath the concrete was found to contain standing water. This standing water also prevented soil sampling. At GP R 273, holes could not be cored through the tank foundation because a steel plate in the double bottom construction of the tank foundation prevented concrete coring. Because of these physical obstructions, the Site Assessment sampling results generated by PESRM together with the Site Characterization sampling results generated by Evergreen in AOI 7 have been used to determine the sources of contamination (per 25 PA Code § 245.309(a)(4)) and to determine the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4)).

The extent of regulated substances identified in soil and groundwater in the area of Tank Group 06 has been delineated to the following Nonresidential Statewide Health Standard (SHS) Medium-Specific Concentration (MSC) numeric values:

Soil

- Nonresidential MSC for Direct Contact Exposure to Surface Soil (0-2 feet [ft])
- Nonresidential MSC for Direct Contact Exposure to Subsurface Soil (2-15 ft)
- Nonresidential MSC for Soil to Groundwater (Used Aquifer)

Groundwater

- Nonresidential MSC for Groundwater Exposure (Used Aquifer)

In accordance with 25 PA Code § 245.309(b)(4), these data provide adequate characterization to determine the regulated substances involved and the extent of migration in soil and groundwater. They provide sufficient information to select a remediation standard per 25 PA Code § 245.309(b)(6) and to allow for the development of a Remedial Action Plan (RAP) per 25 PA Code § 245.309(b)(7) based upon the results of a Site-Specific Risk Assessment.

In accordance with 25 PA Code § 245.310(a)(26), PESRM has selected the Site-Specific Standard (SSS) to attain closure for ASTs in Tank Group 06 where potential release(s) to the environment have been identified. Following PADEP's approval of this Report, PESRM will document separately whether PESRM



or Evergreen should address the release(s) from the ASTs subject to this closure effort, under the CO&A and the 2020 Amendment. The CO&A provides that Evergreen will have the sole authority to address “Pre-Existing Contamination” (before September 8, 2012) at the Facility in accordance with Act 2. PESRM is responsible for addressing releases that occurred thereafter under Act 32. PESRM will evaluate, via a Site-Specific Risk Assessment, whether AST-related contamination identified as having occurred on September 8, 2012 or later could result in exposures to current or reasonably anticipated future receptor populations that could pose risks greater than the risk management goals established in 25 PA Code § 250.402(b). Should the risk assessment identify potentially unacceptable risks, a RAP will be prepared to detail how and what remedial action(s) PESRM will take to attain the SSS. Remedial actions are expected to consist of soil excavation and off-site disposal or pathway elimination via engineering and institutional controls.

This Report is organized as follows:

- Section 2 provides the site setting and includes a description of the Site, operational/usage history of the ASTs, and information regarding site topography, geology, and hydrogeology.
- Section 3 discusses the tank infrastructure and removal activities.
- Section 4 identifies the standard which PESRM has selected to attain for this closure effort (i.e., SSS). It discusses the current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site and presents the institutional and engineering controls which PESRM plans to put into place to ensure the attainment of the SSS. Finally, with consideration for these details, this section provides the scenarios for potential human exposure (i.e., receptors, exposure media, exposure routes) that will be evaluated in the risk assessment².
- Section 5 discusses the results of the Site Assessment and Site Characterization. It documents how adequate characterization has been performed to determine the sources of contamination and the extent of migration of regulated substances in soil and groundwater.
- Section 6 provides a summary of this Report and its conclusions.
- Section 7 provides a listing of the documents referenced in this Report.

² The risk assessment report will document which exposure pathways will be eliminated by a pathway elimination measure so that any substantial present or probably future unacceptable risk to human health or the environment is eliminated.



2 Site Setting

Section 2 provides the site setting and includes a description of the Site, operational/usage history of the ASTs, and information regarding site topography, regional and local geology, and regional and local hydrogeology.

The Facility, a former 1,300-acre refinery, is currently undergoing decommissioning to support redevelopment. The Site³ is approximately 57 acres in size. The Site is located north of the Platt Bridge, between Lanier Avenue and the Schuylkill River. Prior to demolition, Tank Group 06 consisted of seven separate areas containing tanks located in the central portion of the Girard Point Refinery. The areas are separated by facility buildings, large piping structures, and plant access roadways. Except for the asphalt roadways and parking areas that pass through the portions of Tank Group 06, and the tank foundations themselves, the area is not covered by hardscape.

The ASTs addressed in this Report are listed in **Table 1**. Twenty-two other ASTs, not subject to this closure effort, were previously located within Tank Group 06.

Figure 3 provides a layout of Tank Group 06.

2.1 Operational History/Usage of the Tanks

The Facility operated as a petroleum refinery between 1860 and 2019. The refinery ceased operations in 2019. The demolition and decommissioning of the subject ASTs began in March 2022. Prior to demolition, the primary products held within these tanks were: No. 6 fuel oil (GP R 1039), alkyl slurry (GP R 1038), fresh caustic (GP R 1047 and GP R 973), heavy naphtha (GP R 286), light naphtha (GP R 276, and GP R 285), recovered oil (GP R 272, GP R 1101, and GP R 270), and vacuum gas soil (GP R 273, GP R 284, GP R 281, and GP R 282). Additional details regarding the size, contents, and construction of the tanks are provided in **Table 1**.

2.2 Topography

Topography at the Site is generally flat except for containment berms constructed around the tank areas to provide containment in the event of a release. Regional topography slopes gently to the west towards the Schuylkill River, the nearest water body to the Site. The ground surface elevation at the Site is approximately 3.9 ft above mean sea level.

2.3 Regional Geology and Hydrogeology

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

³ Tank Group 06 consists of a tank farm referred to by the Facility as the North Tank Farm.



sediments are approximately 250 ft 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 phreatic surface of the unconfined aquifer as a result of their relatively young geologic age and position along the Schuylkill River (tributaries and creeks). Below the Holocene deposits is a Pleistocene glacial outwash deposit, commonly referred to as the “Trenton Gravel” along the Delaware River valley. Cretaceous-age sand and clay units making up the Potomac-Raritan-Magothy aquifer system underly the Pleistocene deposits.

The sedimentary record near the Site consists of a complex series of water-bearing sand units which can comprise one or more hydrostatic units. Previous 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 Potomac-Raritan-Magothy aquifer system. The deeper groundwater unit is separated by a clay unit; as such, the deeper groundwater has been classified as a semi-confined aquifer. Groundwater is first encountered generally at the Facility at a depth approximately 0.2 to 18 ft below ground surface (bgs; GHD 2017). **Appendix A** provides select figures from the Remedial Investigation Report, AOI 7 (AOI 7 RIR; GHD 2017) and the Sitewide Fate and Transport Remedial Investigation Report (Sitewide Fate and Transport RIR, Stantec 2022) for reference including Figure 8 from the AOI 7 RIR which provides a detailed cross section of the subsurface in the Tank Group 06 area.

2.4 Local Geology and Hydrogeology

During the Site Assessment, soil at the Site was investigated within the upper 5 ft. Anthropogenic fill up to 5 ft thick was observed in soil cores collected from most of the soil borings installed in Tank Group 06. Soil beneath the fill layer generally consists of brown, black, and gray sands and silt. During Site Assessment soil sampling, saturated soil was not encountered.

Beneath Tank Group 06 (and AOI7), the unconfined aquifer is primarily composed of saturated portions of the fill, alluvium, and the Trenton “gravel” with groundwater first encountered at a depth of approximately 0.2 to 18 feet bgs (GHD 2017). Groundwater was not investigated during Site Assessment activities; as such, the hydrogeology for Tank Group 06 is based on the AOI 7 RIR findings. Based on the 2018 unconfined aquifer groundwater contours presented in Figure 3-29 of the Sitewide Fate and Transport RIR (Stantec 2022, **Appendix A**), PESRM has developed an interpreted groundwater flow direction conceptual model presented in **Figure 4**.

As depicted on **Figure 4**, groundwater generally flows north and west toward the bend in the Schuylkill River. Groundwater elevations are higher adjacent to the bulkhead along the western portion of Tank Group 06 and beneath the former AST pads likely resulting from slower recharge associated with lower



permeability soil in these areas. The mounded groundwater areas form a trough interior to the northwestern portion of Tank Group 06 into which groundwater flows radially. These localized features are common across the Facility as documented in the AOI 7 RIR (GHD 2017) which concluded that there are lower hydraulic conductivity soil present along the bulkhead compared to the soil in other areas of the Site, which cause the mounding along the bulkhead and adjacent depression. This observation is also consistent with the Sitewide Fate and Transport RIR (Stantec 2022 – Figure 3-29), both of which are included in **Appendix A**. The AOI 7 RIR states that the hydraulic gradient toward the west is 0.001 (ft/ft) and the gradient toward the north is 0.006 (ft/ft), consistent with historical groundwater elevation contours and confirms flow towards the Schuylkill River.

2.5 Surface Water

In accordance with 25 Pa. Code Section 245.310(a)(29), the potential for groundwater contamination associated with potential releases from the ASTs subject to this closure effort to adversely impact surface water has been evaluated. The Schuylkill River is directly adjacent to the western and northern portions of Tank Group 06, and groundwater has the potential to discharge to surface water. As described in Evergreen’s Sitewide Fate and Transport RIR, groundwater and surface water interaction simulations demonstrate that predicted levels of facility-related chemicals of concern in the Schuylkill River due to discharges from the Facility “*were found to be far below any of the target thresholds, often by two or more orders of magnitude*” and that “*the level of COC mixing that is contributed to the Schuylkill River from the [F]acility is very minor as a result of the large dilution rates within the [R]iver*” (Stantec 2022).



3 Tank Infrastructure and Removal

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

The demolition of the following ASTs began in March 2022 and was completed in September 2022:

- GP R 1039 (PADEP No. 049A)
- GP R 1038 (PADEP No. 050A)
- GP R 1047 (PADEP No. 011A)
- GP R 973 (PADEP No. 066A)
- GP R 286 (PADEP No. 028A)
- GP R 276 (PADEP No. 023A)
- GP R 281 (PADEP No. 025A)
- GP R 285 (PADEP No. 027A)
- GP R 270 (PADEP No. 021A)
- GP R 272 (PADEP No. 022A)
- GP R 1101 (PADEP No. 047A)
- GP R 273 (PADEP No. 003A)
- GP R 284 (PADEP No. 004A)
- GP R 282 (PADEP No. 026A)

During the removal, it was determined that GP R 286, GP R 276, GP R 285, GP R 270, GP R 272, GP R 284, GP R 281, and GP R 282 had thick concrete tank foundations, and GP R 273 had a double bottom⁴. Removal of the concrete foundations was not immediately feasible due to standing water conditions in the area, and removal of the foundations is not expected to be needed to support redevelopment because the development plan calls for several feet of fill to be placed in this area to raise the site grade. Site Assessment sampling has been completed in areas where soil is accessible.

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

The Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) are included as **Appendix C**.

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

⁴ Double bottoms are forms of secondary containment located under the tanks that allow for visual inspection and potential repair to any observed leaks.



4 Selection of Standard and Potential Exposure

Section 4 identifies the standard which PESRM has selected to attain for this closure effort (i.e., SSS). It discusses the current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site and presents the institutional and engineering controls which PESRM plans to put into place in order to ensure the attainment of the SSS. Finally, with consideration for these details, this section provides the scenarios for potential human exposure (i.e., receptors, exposure media, exposure routes) that will be evaluated in the forthcoming risk assessment⁵ which will be used to determine a RAP will need to be prepared.

4.1 Selected Standard

In accordance with 25 PA Code § 245.310(a)(26), PESRM has selected the SSS to attain closure for ASTs in Tank Group 06 where potential release(s) to the environment have been identified. Following PADEP's approval of this Report, PESRM will document separately whether PESRM or Evergreen should address the release(s) from the ASTs subject to this closure effort, under the CO&A and the 2020 Amendment. PESRM will evaluate, via a Site-Specific Risk Assessment, whether AST-related contamination identified as having occurred on September 8, 2012 or later could result in exposures to current or reasonably anticipated future receptor populations that could pose risks greater than the risk management goals established in 25 PA Code § 250.402(b). Should the forthcoming risk assessment identify potentially unacceptable risks, a RAP will be prepared to detail how and what remedial action(s) PESRM will take to attain the SSS. Remedial actions are expected to consist of soil excavation and off-site disposal or pathway elimination via engineering and institutional controls.

4.2 Institutional and Engineering Controls

As part of its redevelopment, PESRM will establish land use restrictions for the Facility in one or more environmental covenants. The environmental covenants are likely to include to include restrictions on certain uses (e.g., unrestricted construction/excavation activities, groundwater use) and requirements for engineering controls (e.g., soil barrier caps and vapor intrusion mitigation). The establishment of these land and groundwater use restrictions may result in the elimination of certain receptor exposure pathways (e.g., exposure to COPC in groundwater, vapor intrusion).

⁵ The risk assessment report will document which exposure pathways will be eliminated by a pathway elimination measures so that any substantial present or probably future unacceptable risk to human health or the environment is eliminated.



4.3 Land and Groundwater Use

Currently, the on-facility area (which includes the Site) is undergoing decommissioning/demolition work, environmental investigation, and predevelopment activities. The land is zoned for Industrial Use⁶. Aside from the asphalt roadways that cut through portions of Tank Group 06, and the tank foundations themselves, the area is currently uncovered and lightly vegetated. The Site is generally flat except for berms constructed around some of the former tank areas. The Site is bounded to the north and west by the Schuylkill River and to the south and east by other portions of the Facility.

As noted in the parcel map included in **Appendix D** and as captured in the conceptual imagery developed by Hilco Redevelopment Partners (<https://www.thebellwetherdistrict.com/>), the area encompassing Tank Group 06 is being redeveloped into a state-of-the-art, multimodal industrial park and life sciences campus with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. Current and reasonably anticipated future land use in the area of Tank Group 06 is commercial/industrial. 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 function as barriers to direct contact exposure. Once redevelopment plans have been finalized, additional investigation and/or evaluation of potential vapor intrusion pathways will be conducted to further evaluate whether conditions could pose an unacceptable risk to future building occupants such that risk management action (e.g., remediation, vapor mitigation) is warranted.

Stemming from several efforts to assess the potential for current and reasonably anticipated future use of groundwater at and in the vicinity of the Facility, Evergreen has documented no confirmed drinking water supply wells within 1-mile of the Facility. These efforts have included several well searches, field verification, and a review of the City of Philadelphia's ordinances. In 2021, Evergreen supplemented these efforts by reviewing the City of Philadelphia's publicly available information concerning potable drinking water intakes, contacting PADEP's Safe Drinking Water Program, contacting the City of Philadelphia's Health Department, contacting the City of Philadelphia Water Department, contacting the City of Philadelphia Department of Parks and Recreation, conducting updated database searches (paGWIS and eMapPA), coordinating with the PADEP to obtain information from the New Jersey Department of Environmental Protection, and providing additional documentation concerning the institutional controls at the Site which prohibit groundwater use (Evergreen 2021).

As a result, groundwater on-facility and off-facility is not a current or reasonably anticipated future source of potable or nonpotable water.

4.4 Scenarios for Potential Human Exposure

Per the requirements specified in 25 Pa. Code § 250.602 and § 250.603, this section identifies potentially exposed populations (receptors) and describes the exposure pathways for each receptor that will be evaluated in the forthcoming risk assessment. Should the risk assessment identify potentially unacceptable risks, a RAP will be prepared to detail how and what remedial action(s) PESRM will take to

⁶ <https://openmaps.phila.gov/>.



attain the SSS. Remedial actions are expected to consist of soil excavation and off-site disposal or pathway elimination via engineering and institutional controls.

As discussed in Section 4.2, as part of its redevelopment, PESRM will establish land use restrictions for the Facility in one or more environmental covenants. The establishment of these land and groundwater use restrictions may result in the elimination of certain receptor exposure pathways (e.g., exposure to COPC in groundwater, vapor intrusion). As a result, this section only includes a discussion regarding the scenarios for potential human exposure to COPC in soil. The forthcoming risk assessment report will document in more detail which exposure pathways will be eliminated by pathway elimination measures so that any substantial present or probable future unacceptable risk to human health or the environment is eliminated.

4.4.1 Potential On-Site Exposures

The Facility (which includes the Site) is currently undergoing decommissioning/demolition work, environmental investigation, and predevelopment activities. Access to the Facility is controlled with fencing and site security. Because of this, trespassing at the Site is expected to be extremely limited under current conditions. The current on-site receptors include construction workers who may become exposed during site redevelopment or major construction activities and trespassers.

Reasonably anticipated future receptors at and in the immediate vicinity of the Site could include workers who may be exposed during the performance of typical or routine commercial activities (routine workers), maintenance workers who may become exposed during maintenance activities including minor subsurface repair/utility activities, construction workers who may become exposed during site redevelopment or major construction activities, and trespassers. Vapor intrusion is not a current or reasonably anticipated future exposure pathway because there currently are no buildings at the Site and PESRM plans to investigate, evaluate, and mitigate (as needed) potentially unacceptable vapor intrusion exposures.

Potential exposure of routine workers is assumed to include incidental ingestion and dermal contact with COPCs in exposed surface soil. Routine workers could also be exposed to COPCs in vapors and particulates from exposed surface soil and in vapors from subsurface soil.

Potential future exposure of construction workers and maintenance workers is assumed to include incidental ingestion and dermal contact with COPCs in exposed surface and subsurface soil, inhalation of COPCs in airborne particulates and vapors from exposed surface soil, and inhalation of COPCs in vapors from subsurface soil.

Potential future exposures of trespassers⁷ are assumed to include incidental ingestion of and dermal contact with COPCs in exposed surface soil, inhalation of COPCs in vapors and particulates from exposed surface soil, and inhalation of COPCs in vapors from subsurface soil.

⁷ While receptor populations could include trespassers, the risk assessment will not quantitatively evaluate the potential exposure of these receptors, but instead will rely upon the quantitative risk calculations performed for routine workers to serve as a surrogate for this population.



4.4.2 Potential Off-Site Exposures

Potential off-site receptors under current and future conditions may include receptors who are off-facility, or receptors who are off-site (i.e., located outside of the Tank Group), but still within other portions of the Facility. Off-site receptors are assumed to include off-facility residents, routine workers, construction workers, and maintenance workers.⁸ Quantitative risk estimates for each of the off-facility receptors will not be performed in the risk assessment. Instead, because the exposure of off-facility residents would be greater than these receptors, the risk assessment will rely on the quantitative risk calculations performed for off-facility residents to serve as a surrogate for these receptor populations.

Potential exposure of off-facility residents is assumed to include inhalation of COPCs in airborne particulates and/or vapors from on-site soil.

4.5 Species and Habitats of Concern

A Pennsylvania Natural Diversity Inventory (PNDI) search was performed which included a conservative study area consisting of the Site and areas within a 2,500-foot radius of the Site. The results of the PNDI search indicated no known impacts by the PA Game Commission and the U.S. Fish and Wildlife Service. The PNDI search did identify potential impacts by the PA Department of Conservation and Natural Resources and the PA Fish and Boat Commission due to the potential presence of threatened and endangered species and/or special concern species. The results of the PNDI search for the study area indicated that further review by the PA Department of Conservation and Natural Resources and PA Fish and Boat Commission was warranted. Accordingly, Terraphase submitted a request for further review to both Agencies. In their responses, they indicated that no impacts to species or habitats of concern are anticipated. The results of the PNDI searches and subsequent correspondence with the PA Department of Conservation and Natural Resources and the PA Fish and Boat Commission are provided as

Appendix E.

PESRM has also conducted a review of the available United States Fish & Wildlife Service National Wetlands Inventory Wetlands Mapper⁹ data in and adjacent to Tank Group 06. While no wetlands were identified within the bounds of Tank Group 06, emergent freshwater wetlands, forested/shrub freshwater wetland, and freshwater ponds were identified adjacent to the east of the Tank Group, in addition to the Schuylkill River to the north and west (**Appendix E**).

⁸ Quantitative risk estimates for each of the off-facility receptors will not be performed. Instead, the risk assessment will rely on the quantitative risk calculations performed for off-facility residents to serve as a surrogate for these receptor populations.

⁹ <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>



5 Site Assessment and Site Characterization

This section discusses the results of the Site Assessment and Site Characterization activities performed following the identification of potential releases to the environment during the demolition and removal of the Tank Group 06 ASTs. At some ASTs, Site Assessment and Characterization sampling could not be completed because of the presence of concrete AST foundations and standing water underlying those foundations. Because of these physical obstructions, the Site Assessment sampling results generated by PESRM and the Site Characterization sampling results and fate and transport analysis produced by Evergreen have been used in combination to determine the sources of contamination (per 25 PA Code § 245.309(a)(4)), to determine the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4)), to provide sufficient information to select a remediation standard (per 25 PA Code § 245.309(b)(6)), and to provide sufficient information to allow for completion of a remedial action plan or a design for remedial action (per 25 PA Code § 245.309(b)(7)).

The initial identification of concentrations of COPCs in soil above applicable MSCs resulted in notifying PADEP of a release to the environment on January 4, 2023. A second notification to PADEP occurred on January 12, 2023. During the performance of Site Assessment sampling, the concrete foundations associated with certain ASTs were partially removed to allow access for sampling. During this effort, free product and water was encountered beneath the concrete pad at GP R 281. Following this initial discovery of the free product, the facility demolition contractor initiated interim measures to recover the observed free product and ponded water from beneath the tank foundation. The free product was contained within the ring wall of the tank foundation. Based upon these observations, PADEP was notified on January 12, 2023 of a potential release from this AST to the environment.

The PADEP assigned the releases in Tank Group 06 to Incident No. 58434. Copies of the notification documents are included in **Appendix G**. **Appendix H** provides the soil analytical results. Copies of the laboratory reports are included as **Appendix I**.

Section 5.1 describes the Site Assessment sampling and analysis methods that were performed by PESRM. Section 5.2 discusses how the soil and groundwater investigation methods and results as documented in the AOI 7 RIR (Stantec 2017) and the groundwater flow and fate and transport modeling results, as documented in the Sitewide Fate and Transport Remedial Investigation Report (Stantec 2022) are included by reference in this Report to complete Site Assessment and Site Characterization. Section 5.3 discusses the soil sampling results and documents how adequate characterization has been performed to complete Site Characterization. Section 5.4 discusses groundwater sampling results and documents how adequate characterization has been performed to complete Site Characterization.

5.1 Site Assessment

The Site Assessment soil sampling was performed by Ransom Consulting, LLC (Ransom) and their subcontractor TPI Environmental, LLC. In total, the effort involved the installation of 68 soil borings and the collection of 71 soil samples. 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.

As discussed in the Work Plan, when no evidence of a release to the environment was identified during tank removal, ASTs were subject to Site Assessment sampling using a grid-based approach with additional samples biased toward the locations of pipe connections or other key infrastructure. The Site Assessment sampling was conducted between December 6 and 9, 2022. The proposed scope could not be completed at some tanks because the concrete pads have not been removed or have been found to be underlain by standing water.

Where soil borings could be installed, they were completed using direct-push (i.e., Geoprobe) drilling or hand auger methods and advanced through the top 5 ft of soil. Continuous soil cores were collected, and field screened using a photoionization detector (PID) to identify potentially impacted zones. Soil sampling intervals were selected based on the results of field screening (i.e., staining, odors, and elevated PID readings). Where potentially impacted materials were not encountered, discrete samples were collected at a depth of 3.0-3.5 ft bgs consistent with the Confirmatory Sampling Protocol detailed in PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems* which requires sampling "at least one foot below underground product piping, two feet below product dispensers, remote fills or containment structures and aboveground product lines for ASTs, and three feet below the tank." Where fill was observed, samples of the fill were collected if it consisted of soil or soil-like material. Groundwater was not encountered during the installation of any of these soil borings.

Figure 5 shows the location of the Site Assessment soil borings which were able to be installed as part of this effort. **Appendix F** provides copies of the boring logs for each of the soil borings installed as part of this effort.

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* [March 2021]). As shown on **Table 1**, for the 14 ASTs subject to this closure effort, 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-trimethylbenzene (1,2,4-TMB), 1,3,5-trimethyl benzene (1,3,5-TMB), 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2.** *Unleaded Gasoline:* benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether (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, chrysene, benzo(b)fluoranthene, benzo(a)pyrene (B[a]P), and benzo(g,h,i)perylene.



- **Short List 6. Waste Oil:** benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, B(a)A, chrysene, B(b)F, B[a]P, indeno(1,2,3-cd)pyrene, benzo(g,h,i)pyrene, and lead.

Volatile organic compounds were analyzed via USEPA Method 8260B. Samples for semi-volatile organic compounds were analyzed via Method 8270C. Samples for lead were analyzed via USEPA Method 6010B. Additionally, pH was analyzed for tank GP R 1047 via USEPA Method 9045D. Laboratory analytical services were provided by Alpha Analytical, Inc. of Westborough, Massachusetts, which is a PADEP-certified laboratory. Soil samples submitted for analyses were placed directly into laboratory provided glassware and stored on ice in a cooler under appropriate chain of custody protocol.

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

5.2 Site Characterization

Because Site Assessment soil sampling could not be completed and because Site Characterization soil and groundwater sampling could not be performed – both due to the technical challenges described above – PESRM has incorporated the results from the sampling performed by Evergreen within in AOI 7 to complete characterization. The Site Assessment sampling results generated by PESRM and the Site Characterization sampling results generated by Evergreen have been used in combination to determine the sources of contamination (per 25 PA Code § 245.309(a)(4)) and to determine the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4)).

As documented in the AOI 7 RIR (GHD 2017), which was approved by PADEP on August 30, 2017 and summarized in PADEP's (2020) *Summary of the Remedial Investigation Report – Area of Interest 7 (AOI 7)*, Evergreen successfully characterized the nature and extent of contamination in soil and groundwater in AOI 7. Overall, AOI 7 contains more than 30 ASTs (including the 14 ASTs subject to this closure effort) and while releases from some of these ASTs have been investigated under Act 32, the results of storage tank investigations were included and summarized in the AOI 7 RIR. Based upon the sampling performed and documented in the AOI 7 RIR, PADEP (2017, 2020) concluded that *“LNAPL and associated impacts to soil, groundwater, and air within AOI 7 have been investigated consistent with the requirements set forth in Act 2.”*

In addition, as has been presented by Stantec (2022), the results of groundwater sampling, in combination with fate and transport modeling performed, *“demonstrate that the extent of contamination”* attributable to the Facility has been delineated. The predictive simulations of fate and transport of groundwater contamination associated with the Facility performed by Evergreen, even in the assumed absence of facility remediation system wells, demonstrated that the aerial extent of facility-related groundwater contamination is expected to remain relatively stable or gradually decrease over time through natural attenuation processes (Stantec 2022). The simulations also demonstrate that predicted levels of facility-related chemicals of concern in the Schuylkill River due to discharges from the Facility *“were found to be far below any of the target thresholds, often by two or more orders of magnitude”* and that *“the level of COC mixing that is contributed to the Schuylkill River from the [F]acility is very minor as a result of the large dilution rates within the [R]iver”* (Stantec 2022).

The soil, groundwater, and LNAPL investigation methods and results as documented in the AOI 7 RIR (Stantec 2017) and the groundwater flow and fate and transport modeling results, as documented in the



Sitewide Fate and Transport Remedial Investigation Report (Stantec 2022) are included by reference here to complete Site Assessment and Site Characterization.

Figure 5 shows the location of the soil borings and monitoring wells which were previously installed by Evergreen, and which are used herein to support completion of Site Characterization. Soil boring and monitoring well construction logs for these sampling points are not included in this Report as they were previously provided to PADEP in Appendix C of the AOI 7 RIR (GHD 2017). Copies of the laboratory analytical reports for these data are not included in this Report as they were previously provided to PADEP in Appendix D of the AOI 7 RIR (GHD 2017).

5.3 Sampling Results

Soil sampling results from PESRM's Site Assessment were supplemented by the Site Characterization sampling results from Evergreen's AOI 7 RIR. In total, this represents data from 194 soil borings and 227 soil samples. Soil sampling results were compared to the following Nonresidential SHS MSC numeric values to identify potential releases to the environment and determine if releases of regulated substances from the ASTs, and their associated piping, could have resulted in contamination (per 25 PA Code § 245.309(a)(4)):

- Nonresidential MSC for Direct Contact Exposure to Surface Soil (0-2 ft)¹⁰
- Nonresidential MSC for Direct Contact Exposure to Subsurface Soil (2-15 ft)
- Nonresidential MSC for Soil to Groundwater (Used Aquifer)

Where the soil data suggest potential releases of regulated substances from the ASTs (i.e., soil concentrations exceed applicable MSCs), soil and groundwater concentrations were compared to the following Nonresidential SHS MSC numeric values to determine the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4)):

Soil

- Nonresidential MSC for Direct Contact Exposure to Surface Soil (0-2 ft)
- Nonresidential MSC for Direct Contact Exposure to Subsurface Soil (2-15 ft)
- Nonresidential MSC for Soil to Groundwater (Used Aquifer)

Groundwater

- Nonresidential MSC for Groundwater Exposure (Used Aquifer)

¹⁰ As described in Section 5.1, soil sampling intervals were based on the results of field screening (i.e., staining, odors, and elevated PID readings). Where potentially impacted materials were not encountered, discrete samples were collected from native soil at a depth of 3.0-3.5 ft bgs, in accordance with PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*. Since only subsurface (>2 ft bgs) soil samples were collected from some locations during the Site Assessment, the comparison of the resulting concentrations to MSCs conservatively disregard the surface/subsurface soil designation reflected in the Non-residential Soil DC MSCs (i.e., results were compared to the Non-Res DC MSCs for surface soil). This approach was used to evaluate potential releases from tanks within Tank Group 06.



As shown on **Table 3**, lead, benzo(b)fluoranthene, and naphthalene were detected in soil in Tank Group 06 or in AOI 7 at concentrations greater than the Nonresidential MSC for Direct Contact Exposure to Surface Soil. Only naphthalene was detected in soil at concentrations greater than the Nonresidential MSC for Direct Contact Exposure to Subsurface Soil. Benzene, ethyl benzene, toluene, vapor mitigation systems, B[a]P, naphthalene, and lead were detected in soil at concentrations greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSC.

5.4 Adequacy of Sampling and Characterization

In accordance with 25 PA Code § 245.309(b)(4), adequate characterization to determine the regulated substances involved and the extent of migration in soil and groundwater due to potential releases from Tank Group 06 ASTs, to select a remediation standard per 25 PA Code § 245.309(b)(6), and to allow for the development of a RAP per 25 PA Code § 245.309(b)(7) based upon the results of a forthcoming Site-Specific Risk Assessment, has been achieved.

The following sections provide a more detailed discussion of the results of sampling conducted in proximity to each of the 14 ASTs subject to this closure effort. The Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) are included as **Appendix C**.

5.4.1 GP R 270 (Recovered Oil)

As shown on **Figure 6A**, two borings (i.e., GPR270-07 and GPR270-11) installed and sampled during the Site Assessment sampling exhibited detected concentrations of lead (i.e., 537 milligrams per kilogram [mg/kg] and 589 mg/kg, respectively) at levels greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSC (450 mg/kg). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs.

Based upon these results, PADEP was notified via telephone on January 4, 2023 and in writing on January 19, 2023, of a potential release from this AST to the environment. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6A**, the Site Assessment soil samples collected by PESRM, in combination with the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of lead has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, a sample collected in July 2010 from monitoring well C-56 exhibited lead at a concentration (i.e., 0.0158 milligrams per liter [mg/L]) greater than the Nonresidential MSC for Groundwater Exposure (Used Aquifer) (i.e., 0.005 mg/L). As shown on **Figure 7A**, the horizontal extent of lead concentrations in groundwater that are greater than this applicable MSC has been delineated in the downgradient direction by wells C-55, C-136, and C-54. As shown on **Figure 7B**, none of the deep monitoring wells in the area have exhibited concentrations of COPCs greater than the Nonresidential MSCs for Groundwater Exposure (Used Aquifer).

5.4.2 GP R 272 (Recovered Oil)

As shown on **Figure 6B**, one boring (i.e., AOI7-BH-16-009) installed and sampled by Evergreen during AOI 7 RIR exhibited a detected concentration of lead (i.e., 526 mg/kg) at a level greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSC (450 mg/kg). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6B**, the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of lead has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, samples from monitoring well C-58, which is located downgradient from this AST, did not exhibit lead at concentrations greater than the Nonresidential MSC for Groundwater Exposure (Used Aquifer) (i.e., 0.005 mg/L).

In accordance with 25 PA Code § 245.309(b)(4), adequate characterization to determine the regulated substances involved and the extent of migration in soil and groundwater due to a potential release from this AST, to select a remediation standard per 25 PA Code § 245.309(b)(6), and to allow for the development of a RAP per 25 PA Code § 245.309(b)(7) based upon the results of a forthcoming Site-Specific Risk Assessment, has been achieved.

5.4.3 GP R 273 (Vacuum Gas Oil)

As shown on **Figure 6C**, two borings (i.e., AOI7-BH-16-014 and -015) installed and sampled during the AOI 7 RIR exhibited detected concentrations of lead (i.e., 566 mg/kg and 452 mg/kg, respectively) at levels greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSC (450 mg/kg). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6C**, the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of lead has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, a sample collected in July 2010 from monitoring well C-56, which is downgradient of this AST, exhibited lead at a concentration (i.e., 0.0158 mg/L) greater than the Nonresidential MSC for Groundwater Exposure (Used Aquifer) (i.e., 0.005 mg/L). As shown on **Figure 7A**, the horizontal extent of lead concentrations in groundwater that are greater than this applicable MSC has been delineated in the downgradient direction by wells C-55, C-136, and C-58. As shown on **Figure 7B**, none of the deep monitoring wells in the area have exhibited concentrations of COPCs greater than the Nonresidential MSCs for Groundwater Exposure (Used Aquifer).



5.4.4 GP R 276 (Light Naphtha)

As shown on **Figure 6D**, one boring (B91-19) installed and sampled during the AOI 7 RIR exhibited a concentration of lead (i.e., 1,110 mg/kg) at a level greater than the Nonresidential MSC for Direct Contact Exposure to Surface Soil (1,000 mg/kg). This soil concentration is not greater than the Nonresidential MSC for Direct Contact Exposure to Subsurface Soil (190,000 mg/kg). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential MSC for Direct Contact Exposure to Subsurface Soil. Five borings (GPR276-01, GPR276-03, GPR276-07, GPR276-16, and GPR276-12) exhibited concentrations of either benzene, B[a]P, and/or lead at levels greater than the Nonresidential MSCs for Soil to Groundwater (Used Aquifer).

Based upon these results, PADEP was notified via telephone on January 4, 2023 and in writing on January 19, 2023, of a potential release from this AST to the environment. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6D**, the Site Assessment soil samples collected by PESRM, in combination with the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of these COPCs in soil relative to the Nonresidential MSC for Direct Contact Exposure to Surface Soil and Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of these COPCs has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, samples collected in January 2013 and May 2016 from downgradient monitoring well B-115 did not exhibit benzene, B[a]P, or lead at concentrations greater than the Nonresidential MSC for Groundwater Exposure (Used Aquifer).

5.4.5 GP R 281 (Vacuum Gas Oil)

During the performance of Site Assessment sampling, the concrete foundations associated with certain ASTs were partially removed to allow access for sampling. During this effort, free product and water was encountered beneath the concrete pad at GP R 281. Following this initial discovery of the free product, the facility contractor initiated interim measures to recover the observed free product and ponded water from beneath the tank foundation. Based upon these observations, PADEP was notified on January 12, 2023 of a potential release from this AST to the environment.

The free product is believed to have been contained within the ring wall of the tank foundation. A sample of the material was collected by Ransom on January 18, 2023 and submitted for whole oil fingerprinting (GC/FID EPA 8015B Modified) and Alkylated PAHs (GC/MS EPA 8270D-SIM Modified) analysis by Alpha Analytical. The results of these analyses were provided to ChemQuants, LLC (ChemQuants), an environmental forensics consultant located in Santa Barbara, California, for further assessment. ChemQuants concluded that the material is heavy gas oil and that it was released 18-28 years ago. This constitutes “Pre-Existing Contamination” per the 2012 Buyer-Seller Agreement, and PESRM subsequently notified Evergreen accordingly. The laboratory analytical results and the ChemQuants report are provided in **Appendix I**.

As shown on **Figure 6E**, none of the borings installed in proximity to the AST and sampled during the Site Assessment or during Evergreen’s AOI 7 RIR exhibited detected concentrations of COPCs at levels greater than the Nonresidential MSCs for Soil. The soil samples were collected from outside the ring wall



which appears to have contained the tank release. The Site Assessment outcome category for this AST is “Obvious, Localized Contamination – Sample Results Meet Standards/Levels”.

5.4.6 GP R 282 (Vacuum Gas Oil)

As shown on **Figure 6F**, two borings (i.e., GPR282-01 and -07) installed and sampled during the Site Assessment sampling exhibited detected concentrations of lead (i.e., 1,520 mg/kg and 493 mg/kg, respectively) at levels greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSC (450 mg/kg). Based on these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6F**, the Site Assessment soil samples collected by PESRM, in combination with the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of lead has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, samples collected from the unconfined (water table) monitoring wells in the vicinity and downgradient of the AST (i.e., C-96, C-130, C-50, C-174) have not exhibited lead concentrations greater than the Nonresidential MSC for Groundwater Exposure (Used Aquifer).

5.4.7 GP R 284 (Vacuum Gas Oil)

As shown on **Figure 6G**, one boring (i.e., GPR284-15) installed and sampled during the Site Assessment exhibited a detected concentration of lead (i.e., 5,090 mg/kg) at levels greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) (i.e., 450 mg/kg). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs.

Based upon these results, PADEP was notified via telephone on January 4, 2023 and in writing on January 19, 2023, of a potential release from this AST to the environment. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6G**, the Site Assessment soil samples collected by PESRM, in combination with the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of these COPCs has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, samples collected from the monitoring well immediately downgradient of this AST (i.e., C-130) have not exhibited lead concentrations greater than the Nonresidential MSCs for Groundwater Exposure (Used Aquifer).

5.4.8 GP R 285 (Light Naphtha)

As shown on **Figure 6H**, three borings (i.e., GPR285-01, -07, and -13) installed and sampled during the Site Assessment sampling exhibited detected concentrations of benzene and/or 1,3,5-TMB at levels greater than the Nonresidential MSCs for Soil to Groundwater (Used Aquifer). None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs.



Based upon these results, PADEP was notified via telephone on January 4, 2023 and in writing on January 19, 2023, of a potential release from this AST to the environment. The Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6H**, the Site Assessment soil samples collected by PESRM, in combination with the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of benzene and 1,3,5-TMB concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of these COPCs has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, samples collected from monitoring wells immediately downgradient of this AST (i.e., C-49 and C-114) have not exhibited benzene or 1,3,5-TMB at concentrations greater than the Nonresidential MSCs for Groundwater Exposure (Used Aquifer). Tables with the groundwater sampling results are included in **Appendix H**.

5.4.9 GP R 286 (Heavy Naphtha)

As shown on **Figure 6I**, none of the borings installed and sampled during the Site Assessment sampling or during Evergreen’s AOI 7 RIR exhibited detected concentrations of COPCs at levels greater than the Nonresidential MSCs for Soil.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the AST is considered closed in accordance with Act 32.

5.4.10 GP R 973 (Caustic, Fresh)

The proposed Site Assessment sampling and analysis scope for this AST was to include characterization of soil pH levels. Site Assessment soil sampling was not completed at this AST because its concrete pad had not been removed. However, as shown on **Figure 6J**, none of the borings installed in proximity to the AST and sampled during Evergreen’s AOI 7 RIR exhibited detected concentrations of COPCs at levels greater than the Nonresidential MSCs for Soil. While soil pH has not been characterized, these soil sampling results do not indicate that a release from GP R 973 has occurred.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the AST is considered closed in accordance with Act 32.

5.4.11 GP R 1039 (#6 Fuel Oil) and GP R 1038 (Alky Slurry)

As shown on **Figure 6K**, three borings (i.e., BNA-9, C-170, and 137-02) installed and sampled during the AOI 7 RIR exhibited detected concentrations of benzene and/or lead at levels greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) MSCs. None of the soil sampling results exhibited COPC concentrations greater than the Nonresidential Soil Direct Contact MSCs. The proposed Site Assessment sampling and analysis scope for GP R 1038 was to include characterization of soil pH levels. Site Assessment soil sampling was not completed at this AST because of standing water. As a



result, the Site Assessment and Site Characterization for this AST relies upon the existing sampling data from the AOI 7 RIR.

Based upon these results, the Site Assessment outcome category for GP R 1038 and GP R 1039 is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”.

As shown on **Figure 6K**, the Site Characterization samples collected by Evergreen during the AOI 7 RIR, adequately characterize the horizontal extent of benzene and lead concentrations in soil relative to the Soil to Groundwater (Used Aquifer) MSC. The vertical extent of migration of benzene and lead has been adequately characterized via the unconfined groundwater monitoring wells surrounding the area of the AST (**Figure 7A**). As shown, none of the samples collected from the unconfined groundwater monitoring at or immediately downgradient of these ASTs (i.e., C-168, C-65, C-170, and C-62) have exhibited benzene or lead concentrations greater than the Nonresidential MSCs for Groundwater Exposure (Used Aquifer).

The Site Assessment outcome category for GP 1038 is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the AST is considered closed in accordance with Act 32.

5.4.12 GP R 1047 (Caustic, Fresh)

As shown on **Figure 6L**, none of the borings installed in proximity to the AST and sampled during the Site Assessment exhibited pH levels outside of the action level range.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the AST is considered closed in accordance with Act 32.

5.4.13 GP R 1101 (Recovered Oil)

As shown on **Figure 6M**, none of the borings installed in proximity to the AST and sampled during the Site Assessment exhibited detected concentrations of COPCs at levels greater than the Nonresidential MSCs for Soil. A boring installed and sampled in proximity to previously closed AST GP C1 1100 (i.e., GP 1100-1100-1) did exhibit benzene in soil at a concentration (1 mg/kg) greater than the Nonresidential MSC for Soil to Groundwater (Used Aquifer) (0.5 mg/kg), however this sample characterized potential conditions in the area around this formerly closed tank, not GP R 1101.

Based upon these results, the Site Assessment outcome category for this AST is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the AST is considered closed in accordance with Act 32.

6 Summary and Conclusions

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 that adequate characterization has been performed for a reliable determination of the need for remedial action based on the selected standard.

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

- GP R 1039 (PADEP No. 049A)
- GP R 1038 (PADEP No. 050A)
- GP R 1047 (PADEP No. 011A)
- GP R 973 (PADEP No. 066A)
- GP R 286 (PADEP No. 028A)
- GP R 276 (PADEP No. 023A)
- GP R 281 (PADEP No. 025A)
- GP R 285 (PADEP No. 027A)
- GP R 270 (PADEP No. 021A)
- GP R 272 (PADEP No. 022A)
- GP R 1101 (PADEP No. 047A)
- GP R 273 (PADEP No. 003A)
- GP R 284 (PADEP No. 004A)
- GP R 282 (PADEP No. 026A)

Based upon the results of soil samples collected during the Site Assessment and a comparison to the selected standards, no evidence of a release from GP R 286, GP R 973, GP R 1047, and GP R 1101 was identified. The Site Assessment outcome category for these ASTs is “No Obvious Contamination – Sample Results Meet Standards/Levels” and the ASTs are considered closed in accordance with Act 32.

Based upon the results of soil samples collected during the Site Assessment and a comparison to applicable MSCs, and visual observations made during the removal of the concrete pad at GP R 281, potential releases of regulated substances to the environment from GP R 270, GP R 272, GP R 273, GP R 276, GP R 282, GP R 284, GP R 285, GP R 1039, GP R 281, and were identified. The Site Assessment outcome category for GP R 270, GP R 272, GP R 273, GP R 276, GP R 282, GP R 284, GP R 285, GP R 1038, and GP R 1039 is “No Obvious Contamination – Sample Results Do Not Meet Standards/Levels”. The Site Assessment outcome category for GP R 281 is “Obvious, Localized Contamination – Sample Results Meet Standards/Levels”. Notifications of release were submitted to the PADEP on January 4 and 12, 2023. PADEP assigned the releases in Tank Group 06 to Incident No. 58434. The notifications indicated that unknown amounts of petroleum-related substances were potentially released in Tank Group 06 from these ASTs. **Table 5** provides a summary of the COPCs identified in soil in proximity to each of the ASTs subject to this closure effort.

At some ASTs, Site Assessment and Characterization sampling could not be completed because of the presence of concrete AST foundations and standing water underlying those foundations. Because of these physical obstructions, the Site Assessment sampling results generated by PESRM and the Site Characterization sampling results and fate and transport analysis produced by Evergreen have been used in combination to complete the SCR for Tank Group 06. Overall, the characterization achieves the following objectives:



- Determining the sources of contamination (per 25 PA Code § 245.309(a)(4))
- Determining the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4))
- Providing sufficient information to select a remediation standard (per 25 PA Code § 245.309(b)(6))
- Providing sufficient information to allow for completion of a remedial action plan or a design for remedial action (per 25 PA Code § 245.309(b)(7))

In accordance with 25 PA Code § 245.310(a)(26), PESRM has selected the SSS to attain closure for ASTs in Tank Group 06 where potential release(s) to the environment have been identified. Following PADEP's approval of this Report, PESRM will document separately whether PESRM or Evergreen will address the release(s) from the ASTs subject to this closure effort, under the CO&A and the 2020 Amendment. PESRM will evaluate, via a Site-Specific Risk Assessment, whether AST-related contamination identified as having occurred on September 8, 2012 or later could result in exposures to current or reasonably anticipated future receptor populations that could pose risks greater than the risk management goals established in 25 PA Code § 250.402(b). Should the risk assessment identify potentially unacceptable risks, a RAP will be prepared to detail how and what remedial action(s) PESRM will take to attain the SSS. Remedial actions are expected to consist of soil excavation and off-site disposal or pathway elimination via engineering and institutional controls.



7 References

GHD. 2017. *Remedial Investigation Report, Area of Interest 7*. June 9.

Pennsylvania Department of Environmental Protection (PADEP). 2022. *Closure Requirements for Aboveground Storage Tank Systems*. February 7.

———. 2021. *Land Recycling Program Technical Guidance Manual*. March 27.

———. 2022. *Site Assessment Sampling Requirements at Regulated Storage Tank System Closures*. February 7.

Stantec. 2022. *Sitewide Fate and Transport Remedial Investigation Report*. June 30.

Terraphase Engineering Inc. (Terraphase). 2021. *Aboveground Storage Tank Closure Work Plan*. March.



Tables

- 1 Aboveground Storage Tank Details
- 2 Soil Screening Summary (Tank Group 06 Area)
- 3 Scenarios for Potential Human Exposure
- 4 COPCs Identified in Soil in Proximity to Tank Group 06 ASTs



Table 1
Aboveground Storage Tank Details
Tank Group 06

Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	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
Girard Point	049A	GP R 1039	126,000	#6 Fuel Oil	Short List 5	R	51-33624	3/9/2022	Cone Roof	N	25	36			Y	3/30/2022			
Girard Point	050A	GP R 1038	126,000	Alky Slurry	Short List 1-5, pH	R	51-33624	3/9/2022	Cone Roof	N	25	36			Y	3/30/2022			
Girard Point	011A	GP R 1047	158,340	Caustic, Fresh	pH	R	51-33624	7/6/2022	Open Top	N	30	30		Y	Y	7/13/2022			
Girard Point	066A	GP R 973	53,004	Caustic, Fresh	pH	R	51-33624	5/31/2022	Cone Roof	N	19	25			Y	6/6/2022			
Girard Point	028A	GP R 286	3,045,000	Heavy Naphtha	Short List 1-5	R	51-33624	5/5/2022	IFR	Y	120	40		Y	Y*	5/17/2022			
Girard Point	023A	GP R 276	3,045,000	Light Naphtha	Short List 1-5	R	51-33624	4/6/2022	IFR	Y	120	40		Y	Y*	4/27/2022	1/4/2023	58434	
Girard Point	027A	GP R 285	3,045,000	Light Naphtha	Short List 1-5	R	51-33624	5/2/2022	IFR	Y	120	40		Y	Y*	5/17/2022	1/4/2023	58434	
Girard Point	021A	GP R 270	3,078,012	Recovered Oil	Short List 1-6	R	51-33624	3/9/2022	IFR	Y	120	40		Y	Y*	3/30/2022	1/4/2023	58434	
Girard Point	022A	GP R 272	3,045,000	Recovered Oil	Short List 1-6	R	51-33624	9/9/2022	IFR	Y, Removed	120	40		Y	Y	9/9/2022			
Girard Point	047A	GP R 1101	84,000	Recovered Oil	Short List 1-6	R	51-33624	7/7/2022	IFR	N	25	24		Y	Y	7/13/2022			
Girard Point	003A	GP R 273	3,385,200	Vacuum Gas Oil	Short List 1-5	R	1	5/25/2023	Cone Roof	N	120	40		Y	Y	5/31/2023			
Girard Point	004A	GP R 284	3,385,200	Vacuum Gas Oil	Short List 1-5	R	51-33624	5/10/2022	Cone Roof	Y	120	39.75		Y	Y*	5/17/2022	1/4/2023	58434	
Girard Point	025A	GP R 281	3,385,200	Vacuum Gas Oil	Short List 1-5	R	51-33624	4/19/2022	Cone Roof	Y	120	40		Y	Y*	4/27/2022	1/12/2023	58434	Y
Girard Point	026A	GP R 282	3,385,200	Vacuum Gas Oil	Short List 1-5	R	51-33624	5/13/2022	Cone Roof	Y	120	40		Y	Y*	5/17/2022	1/4/2023	58434	

Note:
* - Double bottom still to be removed.

Abbreviations:
ERF -- External Floating Roof
IRF -- Internal Floating Roof
TOOU - Temporarily Out of Use
N -- No
Y -- Yes

Table 2
Soil Screening Summary (Tank Group 06 Area)

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

Dataset	Chem Group	Chemical	CASRN	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Non-Res Direct Contact MSC for Surface Soil (0-2 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Surface Soil	Non-Res Direct Contact MSC for Subsurface Soil (2-15 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Subsurface Soil	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)	Ratio of Max Detect to Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Res Soil Vapor Intrusion (mg/kg)	Ratio of Max Detect to Soil Non-Res Vapor Intrusion
AST	VOC	Benzene	71-43-2	64	23	0.00020	1.2	12	280	0.043	330	0.036	0.50	24	0.13	92
AST	VOC	Cumene	98-82-8	64	33	0.00015	1.8	18	10000	0.0018	10000	0.0018	2500	0.0072	2500	0.0072
AST	VOC	1,2-Dichloroethane	107-06-2	64	1	0.037	0.037	0.037	85	0.00044	98	0.00038	0.50	0.074	0.10	0.37
AST	VOC	Ethyl Benzene	100-41-4	64	26	0.00016	3.4	51	880	0.058	1000	0.051	70.00	0.73	46	1.1
AST	VOC	Methyl tert-butyl ether	1634-04-4	64	2	0.00090	0.0012	0.0014	8500	0.0000016	9800	0.0000014	2.00	0.00070	1.4	0.0010
AST	VOC	Toluene	108-88-3	64	18	0.013	2.8	17	10000	0.0017	10000	0.0017	100	0.17	44	0.39
AST	VOC	1,2,4-Trimethylbenzene	95-63-6	64	36	0.00038	11	210	4700	0.045	5400	0.039	300	0.70	300	0.70
AST	VOC	1,3,5-Trimethylbenzene	108-67-8	64	30	0.00027	8.5	120	4700	0.026	5400	0.022	93	1.3	93	1.3
AST	VOC	Xylenes (total)	1330-20-7	64	35	0.0013	5.4	95	7900	0.012	9100	0.010	1000	0.10	990	0.10
AST	SVOC	Anthracene	120-12-7	64	59	0.042	1.5	16	190000	0.000084	190000	0.000084	350	0.046		
AST	SVOC	Benzo(a)anthracene	56-55-3	64	63	0.036	3.0	55	130	0.42	190000	0.00029	340	0.16		
AST	SVOC	Benzo(a)pyrene	50-32-8	64	60	0.061	3.2	59	91	0.65	190000	0.00031	46	1.3		
AST	SVOC	Benzo(b)fluoranthene	205-99-2	64	61	0.11	3.4	56	76	0.74	190000	0.00029	170	0.33		
AST	SVOC	Benzo(g,h,i)perylene	191-24-2	64	61	0.044	2.0	45	190000	0.00024	190000	0.00024	180	0.25		
AST	SVOC	Chrysene	218-01-9	64	63	0.032	3.0	60	760	0.079	190000	0.00032	230	0.26		
AST	SVOC	Fluorene	86-73-7	64	60	0.038	1.5	18	130000	0.00014	190000	0.00010	3800	0.0047		
AST	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	5	5	0.086	0.17	0.26	76	0.0034	190000	0.0000014	18000	0.000014		
AST	SVOC	Naphthalene	91-20-3	64	59	0.030	5.7	20	66	0.30	77	0.26	25	0.80	25	0.80
AST	SVOC	Phenanthrene	85-01-8	64	63	0.031	6.4	150	190000	0.00079	190000	0.00079	10000	0.015		
AST	SVOC	Pyrene	129-00-0	64	63	0.054	5.9	160	96000	0.0017	190000	0.00084	2200	0.073		
AST	INORG	Lead	7439-92-1	64	64	5.0	320	5100	1000	5.1	190000	0.027	450	11		
Evergreen	VOC	Benzene	71-43-2	382	168	0.00060	2.1	84	280	0.30	330	0.25	0.50	170	0.13	646
Evergreen	VOC	Cumene	98-82-8	327	95	0.00090	2.7	41	10000	0.0041	10000	0.0041	2500	0.016	2500	0.016
Evergreen	VOC	1,2-Dibromoethane	106-93-4	237	2	0.0022	0.0022	0.0022	4	0.00059	4.2	0.00052	0.0050	0.44	0.0013	1.7
Evergreen	VOC	Ethyl Benzene	100-41-4	374	146	0.00050	2.5	75	880	0.085	1000	0.075	70	1.1	46	1.6
Evergreen	VOC	Methyl tert-butyl ether	1634-04-4	258	6	0.00080	0.0039	0.017	8500	0.0000020	9800	0.0000017	2.0	0.0085	1.4	0.012
Evergreen	VOC	Toluene	108-88-3	375	211	0.00030	2.7	130	10000	0.013	10000	0.013	100	1.3	44	3.0
Evergreen	VOC	1,2,4-Trimethylbenzene	95-63-6	267	97	0.00068	4.6	280	4700	0.060	5400	0.052	300	0.93	300	0.93
Evergreen	VOC	1,3,5-Trimethylbenzene	108-67-8	267	57	0.00060	3.4	130	4700	0.028	5400	0.024	93	1.4	93	1.4
Evergreen	VOC	Xylenes (total)	1330-20-7	350	193	0.00080	9.3	500	7900	0.063	9100	0.055	1000	0.50	990	0.51
Evergreen	SVOC	Anthracene	120-12-7	303	231	0.00072	2.5	82	190000	0.00043	190000	0.00043	350	0.23		
Evergreen	SVOC	Benzo(a)anthracene	56-55-3	304	263	0.0030	2.2	78	130	0.60	190000	0.00041	340	0.23		
Evergreen	SVOC	Benzo(a)pyrene	50-32-8	307	266	0.0046	2.0	74	91	0.82	190000	0.00039	46	1.6		
Evergreen	SVOC	Benzo(b)fluoranthene	205-99-2	288	254	0.0024	2.3	92	76	1.2	190000	0.00048	170	0.54		
Evergreen	SVOC	Benzo(g,h,i)perylene	191-24-2	287	242	0.0037	1.5	41	190000	0.00022	190000	0.00022	180	0.23		
Evergreen	SVOC	Chrysene	218-01-9	304	271	0.0044	2.8	72	760	0.094	190000	0.00038	230	0.31		
Evergreen	SVOC	Fluorene	86-73-7	288	194	0.0013	7.2	400	130000	0.0031	190000	0.0021	3800	0.11		
Evergreen	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	96	68	0.0027	1.4	15	76	0.20	190000	0.000079	18000	0.00083		
Evergreen	SVOC	Naphthalene	91-20-3	387	281	0.00080	4.3	80	66	1.2	77	1.0	25	3.2	25	3.2
Evergreen	SVOC	Phenanthrene	85-01-8	304	271	0.0035	11	620	190000	0.0033	190000	0.0033	10000	0.062		
Evergreen	SVOC	Pyrene	129-00-0	299	270	0.0060	4.7	140	96000	0.0014	190000	0.00072	2200	0.062		
Evergreen	INORG	Lead	7439-92-1	299	296	2.2	550	67000	1000	67	190000	0.35	450	150		

Notes:

Only constituents detected are shown.

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

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

Table 3

Scenarios for Potential Human Exposure

Philadelphia Energy Solutions Refining & Marketing LLC (PESRM) Philadelphia Refining Complex, Philadelphia, Pennsylvania

Receptor Population	Exposure Medium	Exposure Route	Potential Current Exposure?	Potential Future Exposure?	Comments	
On-Site						
Routine Workers	surface soil	incidental ingestion of and dermal contact with surface soil	No	Yes	Currently, routine workers are not at the Site as the Facility is currently undergoing decommissioning, cleanup and redevelopment.	
		inhalation of soil-derived vapors and airborne particulates (wind erosion) in outdoor air	No	Yes		
		inhalation of soil-derived vapors that migrate through building foundations into indoor air	No	No		
	subsurface soil	inhalation of soil-derived vapors in outdoor air	No	Yes	Following redevelopment, exposure to surface soil through incidental ingestion, dermal contact, and inhalation of vapor and particulates is possible in areas without ground cover and in those areas where ground cover may be removed in the future. Following redevelopment, most of the soil at the Site will be located under building slabs, drive aisles, parking lots, new roadways, and other paved areas. Buildings in areas where potentially unacceptable vapor intrusion risks are identified will be managed via engineering controls (e.g., vapor barriers or other mitigation controls).	
		inhalation of soil-derived vapors that migrate through building foundations into indoor air	No	No		
	groundwater	incidental ingestion of and dermal contact with groundwater and inhalation of groundwater-derived vapors during use of groundwater for drinking water	No	No		
		incidental ingestion of and dermal contact with groundwater and inhalation of groundwater-derived vapors during use of groundwater for purposes other than drinking water	No	No		
		inhalation of groundwater-derived vapors in outdoor air	No	Yes		
		inhalation of groundwater-derived vapors that migrate through building foundations into indoor air	No	No		
	LNAPL	inhalation of vapors in outdoor air	No	Yes		
inhalation of vapors that migrate through building foundations into indoor air		No	No			
Maintenance Workers	surface soil	incidental ingestion of and dermal contact with soil	No	Yes		Currently, maintenance workers are not at the Site as the Facility is currently undergoing decommissioning, cleanup and redevelopment.
		inhalation of soil-derived vapors and airborne particulates in work-space outdoor air	No	Yes		
	subsurface soil	incidental ingestion of and dermal contact with soil	No	Yes	Following redevelopment, maintenance workers could be exposed to surface and subsurface soil during occasional excavations. Restrictions will be placed on the performance of any subsurface intrusive work that could encounter groundwater. Any on-facility employees or contractors preparing to perform subsurface work at the Facility in a manner that could result in direct contact with groundwater or LNAPL will be required to be Hazardous Waste Operations and Emergency Response (HAZWOPER) certified. They will also be required to prepare and follow task-specific health and safety plans (HASP) to prevent unacceptable exposure to COPCs from groundwater or LNAPL.	
		inhalation of soil-derived vapors and airborne particulates in work-space outdoor air	No	Yes		
	groundwater	incidental ingestion of and dermal contact with exposed groundwater	No	No		
		inhalation of vapors from exposed groundwater in work-space outdoor air	No	No		
	LNAPL	dermal contact with exposed NAPL	No	No		
inhalation of vapors from exposed NAPL in work-space air		No	No			
Construction (Redevelopment) Workers	surface soil	incidental ingestion of and dermal contact with soil	Yes	Yes		During redevelopment, construction workers could be exposed to surface and subsurface soil during occasional excavations. Restrictions will be placed on the performance of any subsurface intrusive work that could encounter groundwater. Any on-facility employees or contractors preparing to perform subsurface work at the Facility in a manner that could result in direct contact with groundwater or LNAPL will be required to be Hazardous Waste Operations and Emergency Response (HAZWOPER) certified. They will also be required to prepare and follow task-specific health and safety plans (HASP) to prevent unacceptable exposure to COPCs from groundwater or LNAPL.
		inhalation of soil-derived vapors and airborne particulates in work-space air	Yes	Yes		
	subsurface soil	incidental ingestion of and dermal contact with soil	Yes	Yes		
		inhalation of soil-derived vapors and airborne particulates in work-space air	Yes	Yes		
	groundwater	incidental ingestion of and dermal contact with exposed groundwater	No	No		
		inhalation of vapors from exposed groundwater in work-space air	No	No		
	LNAPL	dermal contact with exposed NAPL	No	No		
inhalation of vapors from exposed NAPL in work-space air		No	No			

Table 3

Scenarios for Potential Human Exposure

Philadelphia Energy Solutions Refining & Marketing LLC (PESRM) Philadelphia Refining Complex, Philadelphia, Pennsylvania

Receptor Population	Exposure Medium	Exposure Route	Potential Current Exposure?	Potential Future Exposure?	Comments
On-Site (cont.)					
Trespassers	surface soil	incidental ingestion of and dermal contact with surface soil	Yes	Yes	Access to the Site is currently restricted by fencing and security measures. While limited, exposure to surface soil is possible in areas without ground cover, and in those areas where ground cover may be removed in the future. Following redevelopment, most of the soil at the Site will be located under building slabs, drive aisles, parking lots, new roadways, and other paved areas. Trespasser exposure to soil will be qualitatively evaluated by using routine worker exposure estimates as a surrogate.
		inhalation of soil-derived vapors and airborne particulates (wind erosion) in outdoor air	Yes	Yes	
	subsurface soil	inhalation of soil-derived vapors in outdoor air	Yes	Yes	
	groundwater	inhalation of groundwater-derived vapors in outdoor air	Yes	Yes	
	LNAPL	inhalation of vapors in outdoor air	Yes	Yes	
Off-Site					
Residents	on-site surface soil	incidental ingestion of and dermal contact with surface soil	No	No	No site-related soil contamination is present off-site. Currently, off-site residents could be exposed to on-site surface soil via inhalation of soil-derived vapors and windborne particulates. Following redevelopment, most of the soil at the Site will be located under building slabs, drive aisles, parking lots, new roadways, and other paved areas which will limit emission of on-site soil-derived chemicals and off-site airborne transport.
		inhalation of soil-derived vapors and airborne particulates (wind erosion) in outdoor air	Yes	Yes	
	groundwater	incidental ingestion of and dermal contact with groundwater and inhalation of groundwater-derived vapors during use of groundwater for drinking water	No	No	Groundwater is not currently used for potable or nonpotable purposes at or in the vicinity of the Site and it is not expected to be used for potable purposes in the future. Site-related groundwater contamination does not currently exist off-site. Also, site-related groundwater contamination is not expected to migrate off-site in the future.
		incidental ingestion of and dermal contact with groundwater and inhalation of groundwater-derived vapors during use of groundwater for purposes other than drinking water	No	No	
		inhalation of groundwater-derived vapors in outdoor air	No	No	
		inhalation of groundwater-derived vapors that migrate through building foundations into indoor air	No	No	
	LNAPL	inhalation of vapors in outdoor air	No	No	Exposure through inhalation of vapor is possible in areas without ground cover and in those areas where ground cover may be removed in the future.
		inhalation of vapors that migrate through building foundations into indoor air	No	No	

Notes:

Off-site residents will serve as a surrogate for other off-site receptors including routine workers and maintenance workers.

Table 4**COPCs Identified in Soil in Proximity to Tank Group 06 ASTs**

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

GP R 270	GP R 272	GP R 273	GP R 276	GP R 281
Lead	Lead	Lead	Benzene Benzo(a)pyrene Lead	None
GP R 282	GP R 284	GP R 285	GP R 286	GP R 973
Lead	Lead	Benzene 1,3,5-Trimethylbenzene	None	Lead
GP R 1038	GP R 1039	GP R 1047*	GP R 1101	
Benzene Lead	Benzene Lead	None	None	

Notes:

Site assessment soil samples were not collected at the gray-shaded tanks.

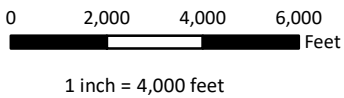
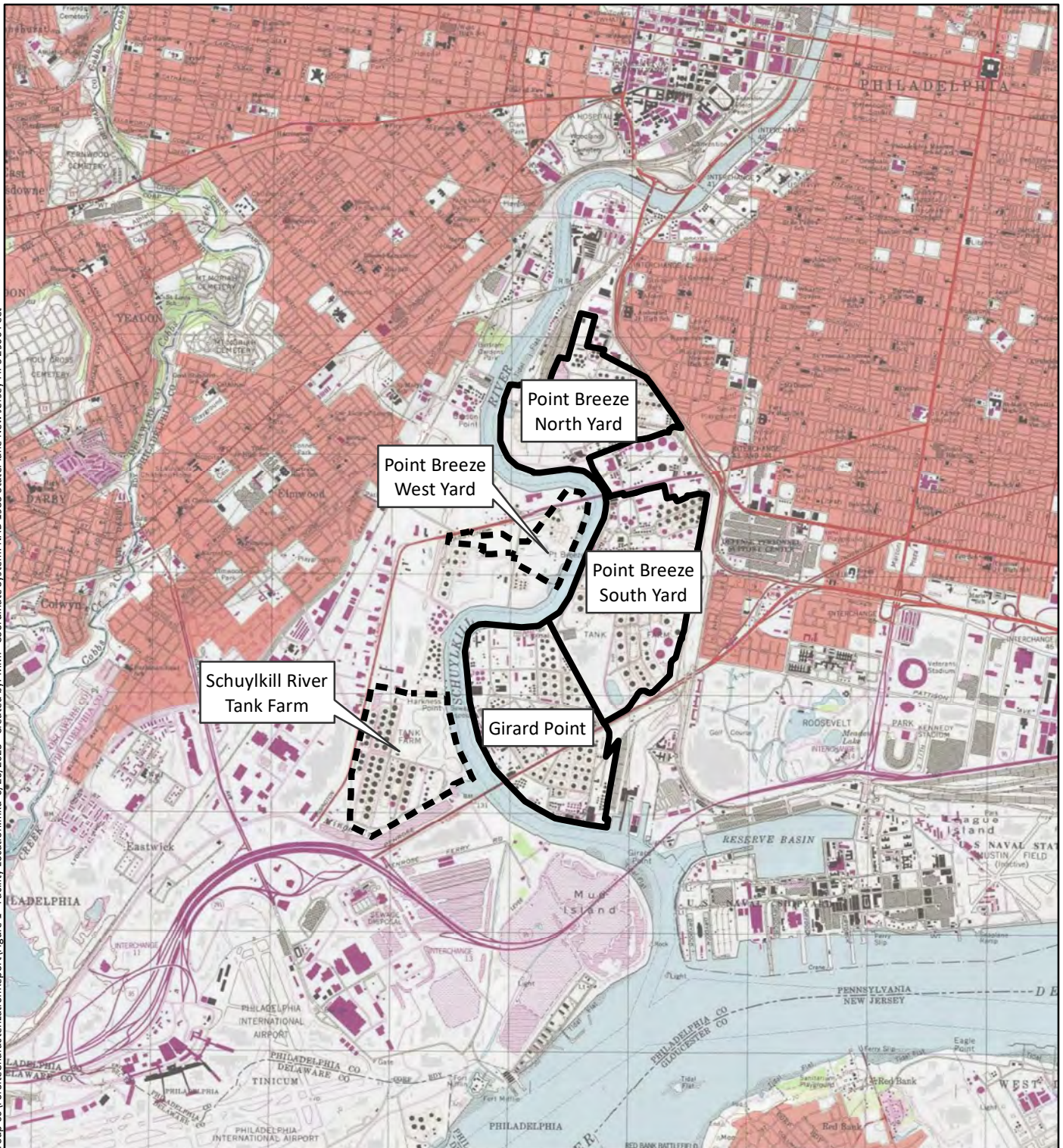
Characterization data from the AOI 7 RIR were used to identify COPCs in proximity to these tanks.

*Site assessment samples collected at GP R 1047 were analyzed for pH only.

Figures

- 1 Facility Location
- 2 Site Location
- 3 Site Layout (Tank Group 06)
- 4 Interpreted Groundwater Flow (Tank Group 06)
- 5 Soil Sample Locations and Monitoring Wells (Tank Group 06)
- 6A Soil Sample Results, Tank Group 06 (AST GP R 270)
- 6B Soil Sample Results, Tank Group 06 (AST GP R 272)
- 6C Soil Sample Results, Tank Group 06 (AST GP R 273)
- 6D Soil Sample Results, Tank Group 06 (AST GP R 276)
- 6E Soil Sample Results, Tank Group 06 (AST GP R 281)
- 6F Soil Sample Results, Tank Group 06 (AST GP R 282)
- 6G Soil Sample Results, Tank Group 06 (AST GP R 285)
- 6H Soil Sample Results, Tank Group 06 (AST GP R 284)
- 6I Soil Sample Results, Tank Group 06 (AST GP R 286)
- 6J Soil Sample Results, Tank Group 06 (AST GP R 973)
- 6K Soil Sample Results, Tank Group 06 (AST GP R 1101)
- 6L Soil Sample Results, Tank Group 06 (AST GP R 1038 and GP R 1039)
- 6M Soil Sample Results, Tank Group 06 (AST GP R 1047)
- 7A Unconfined Groundwater Sampling Results (Tank Group 06)
- 7B Deep Groundwater Sampling Results (Tank Group 06)

















Legend

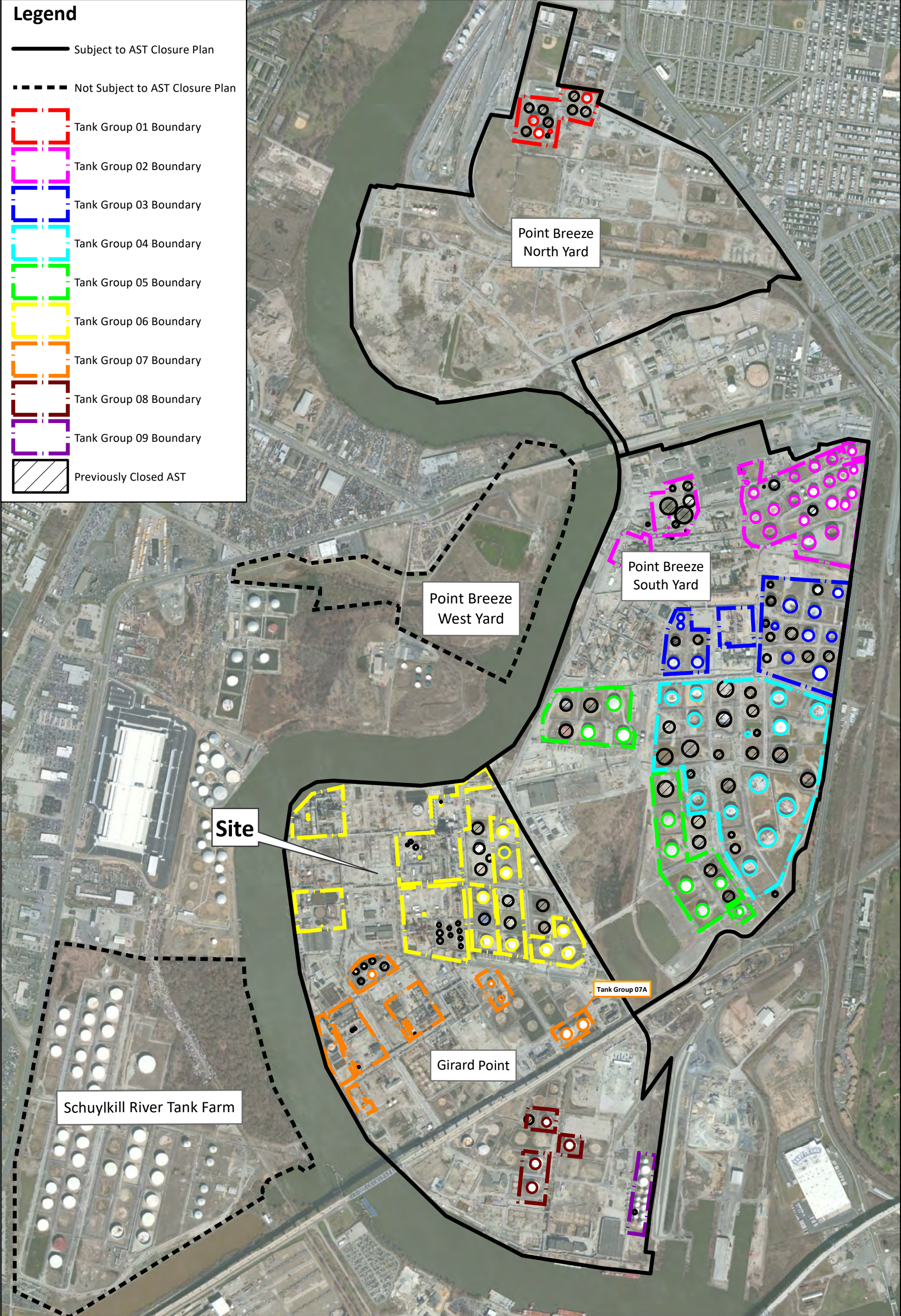
- Subject to AST Closure Plan
- Not Subject to AST Closure Plan

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

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

Legend

-  Subject to AST Closure Plan
-  Not Subject to AST Closure Plan
-  Tank Group 01 Boundary
-  Tank Group 02 Boundary
-  Tank Group 03 Boundary
-  Tank Group 04 Boundary
-  Tank Group 05 Boundary
-  Tank Group 06 Boundary
-  Tank Group 07 Boundary
-  Tank Group 08 Boundary
-  Tank Group 09 Boundary
-  Previously Closed AST




File: N:\GIS\Prj\P044_001_PESRM-PES\WXDS\AST\Work\Tank Group 06\ForSiteCharacterizationReport\Figure 2 - Site Location.mxd Created by: MMI Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



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

Notes: Aerial imagery source Maxar 10/19/2019

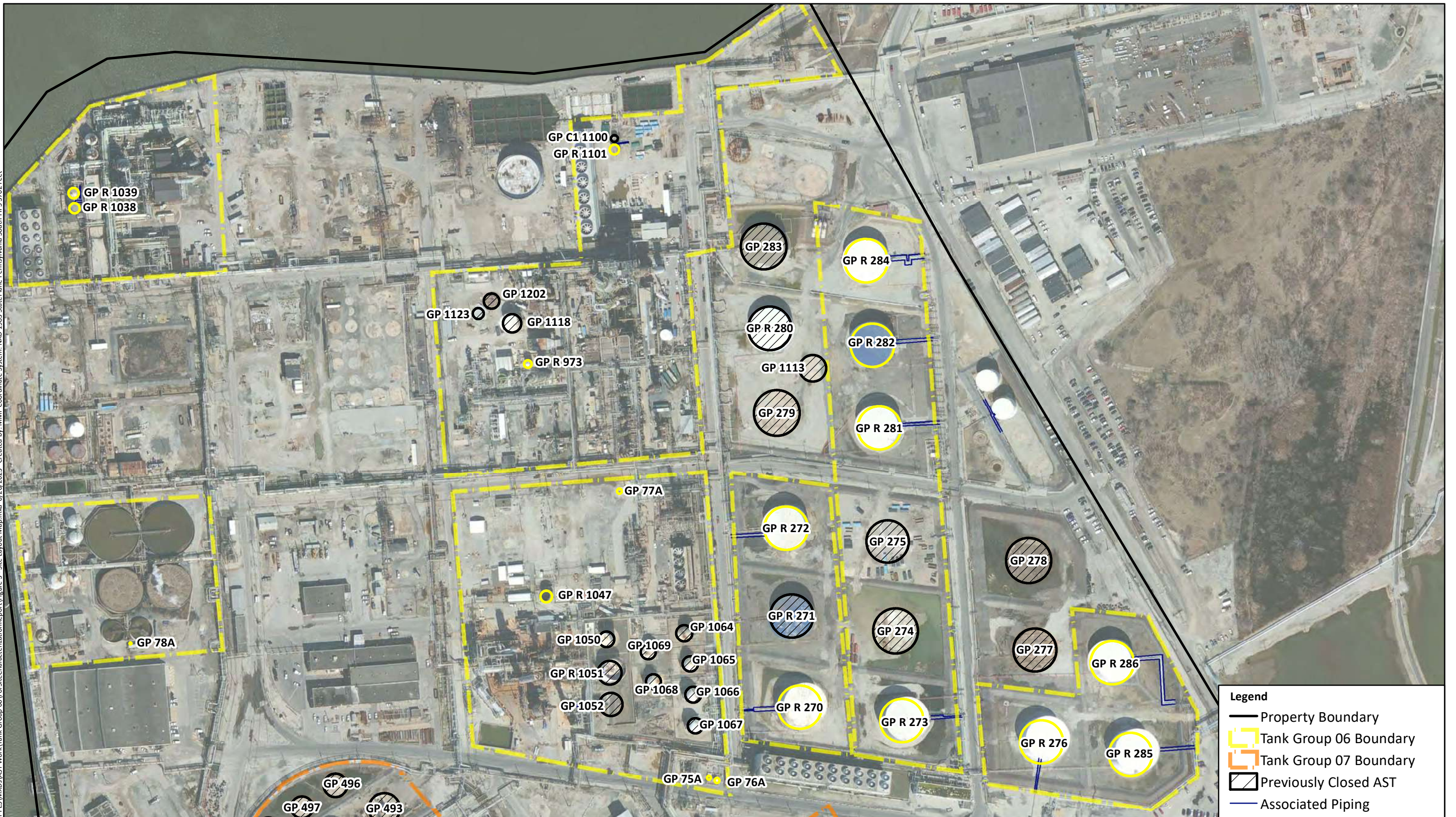
SAFETY FIRST



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

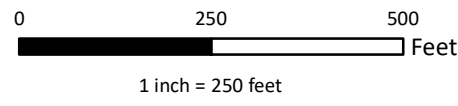
Site Location
Figure 2

File: N:\GIS\Prj\044_001_PESRM-PES\MXDS\AST\Work\Tank_Group_06\FacilityCharacterizationReport\Figure 3 - Site Layout Map.mxd 6/26/2023 Created by: MMI Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



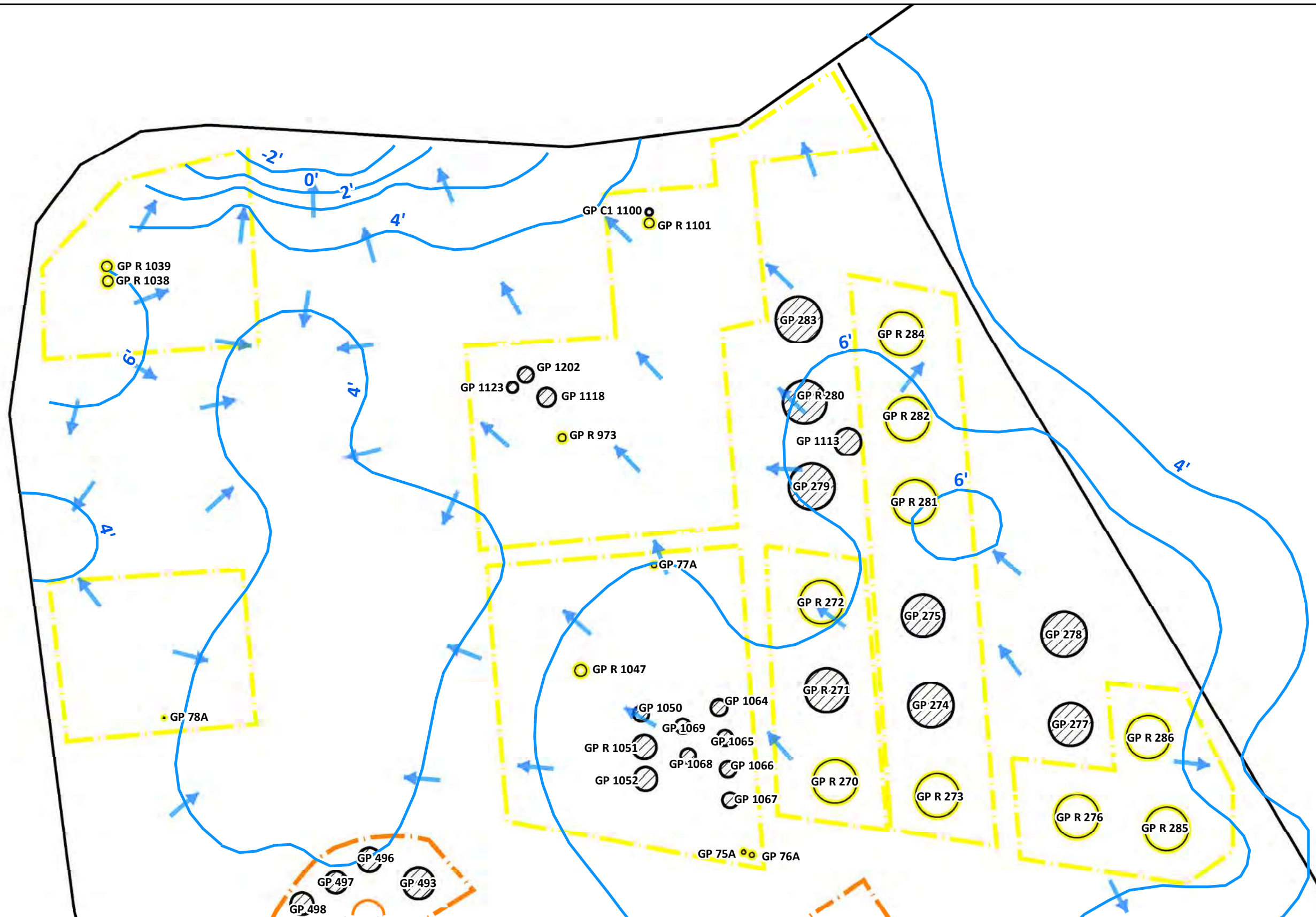
- Legend**
- Property Boundary
 - Tank Group 06 Boundary
 - Tank Group 07 Boundary
 - ▨ Previously Closed AST
 - Associated Piping

Note: Aerial imagery source Maxar 10/19/2019



 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Layout Map Tank Group 06 Figure 3
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXS\AST\Work\Tank_Group_06\Figure X - Interpreted Groundwater Flow.mxd 6/26/2023 Created by: MMI Coordinate System: NAD_1983_StatePlane_Pennsylvania_South_FIPS_3702_Feet

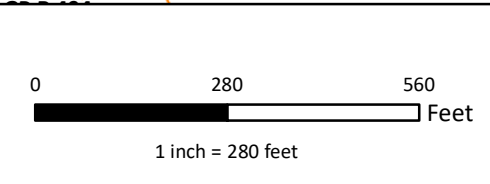


Legend

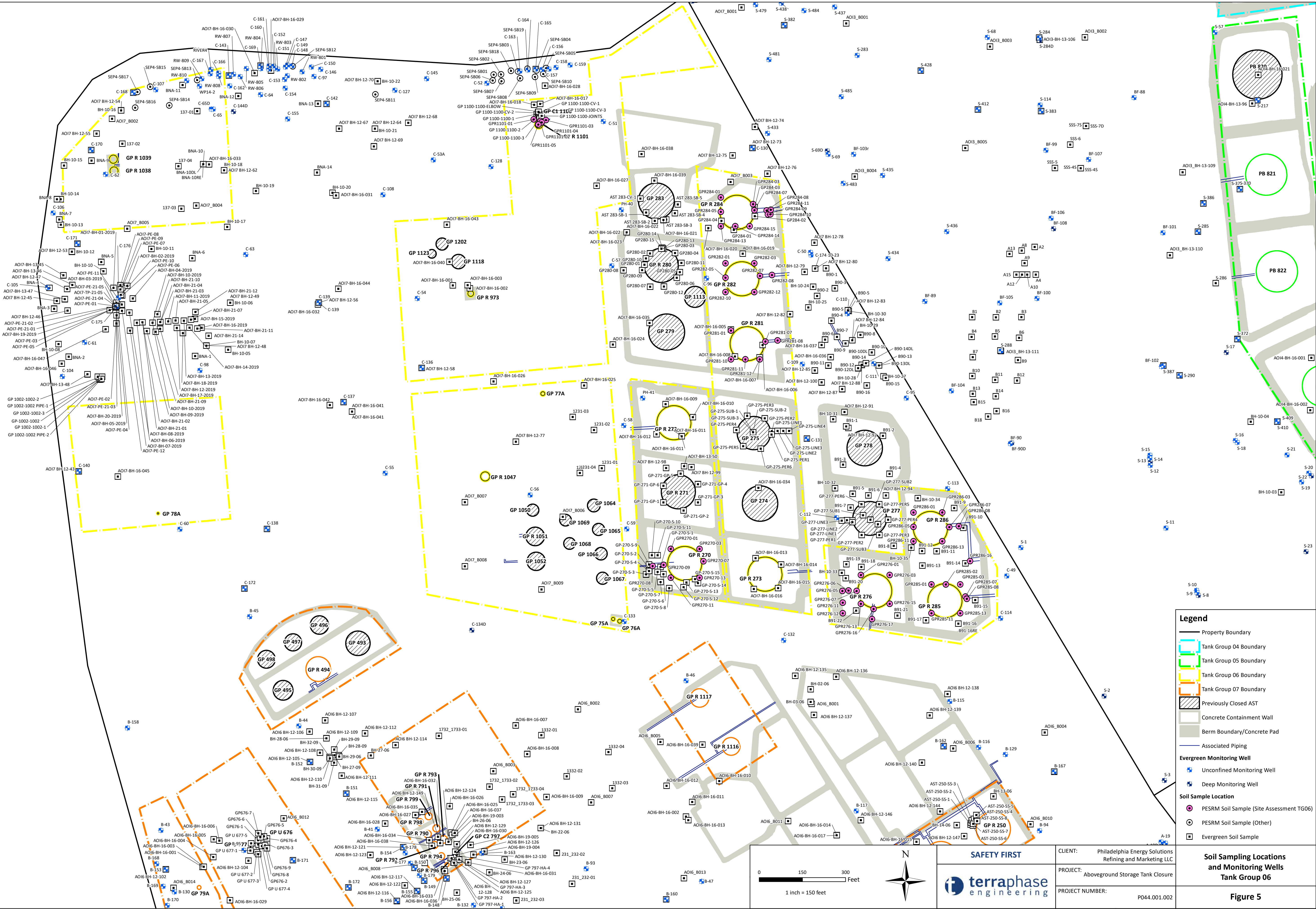
- Property Boundary
- Tank Group 04 Boundary
- Tank Group 05 Boundary
- Tank Group 06 Boundary
- Tank Group 07 Boundary
- Previously Closed AST
- Groundwater Flow Direction
- Groundwater Elevation Contour

Notes:

1. Interpreted groundwater flow is based on the June 2018 water-table elevation data prepared by Stantec (2022).
2. Standard groundwater elevation contour interval is 2.0 ft ASML.



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Interpreted Groundwater Flow Unconfined Shallow Groundwater Tank Group 06
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Figure 4	



Legend

- Property Boundary
- Tank Group 04 Boundary
- Tank Group 05 Boundary
- Tank Group 06 Boundary
- Tank Group 07 Boundary
- Previously Closed AST
- Concrete Containment Wall
- Berm Boundary/Concrete Pad
- Associated Piping

Evergreen Monitoring Well

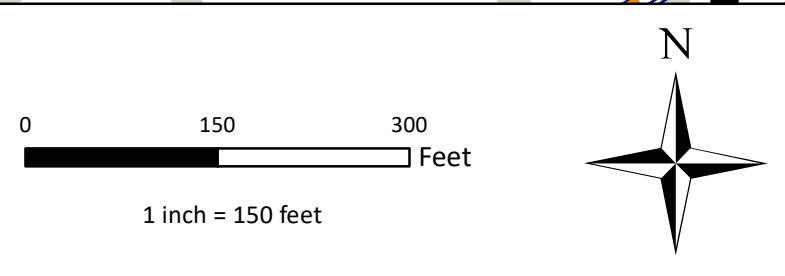
- Unconfined Monitoring Well
- Deep Monitoring Well

Soil Sample Location

- PESRM Soil Sample (Site Assessment TG06)
- PESRM Soil Sample (Other)
- Evergreen Soil Sample

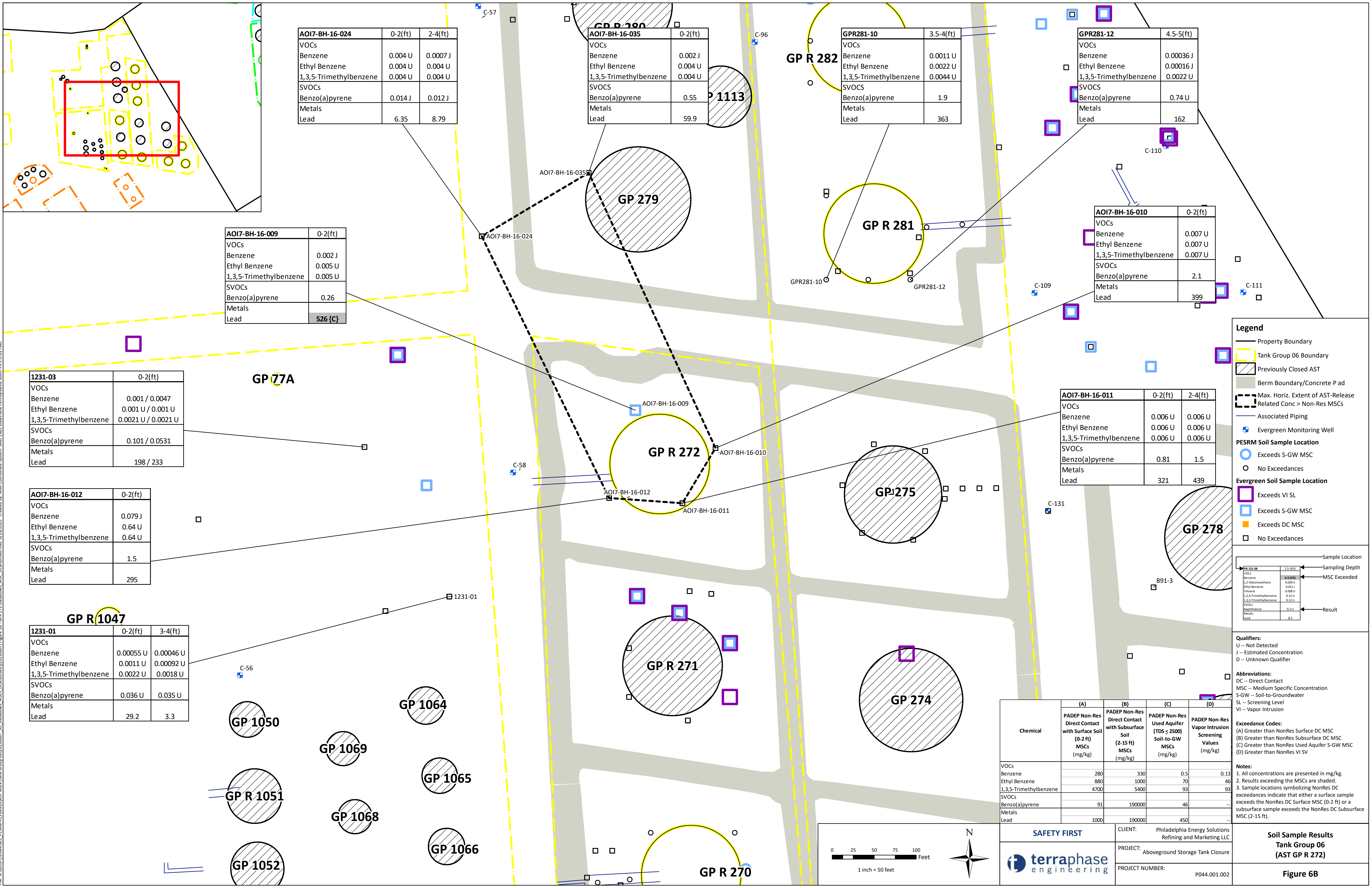
Soil Sampling Locations and Monitoring Wells Tank Group 06

Figure 5



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

File: N:\VES\BYP\044_001_PESRM-PEV\003\AST Work\Tank Group 06\02020907_50_Database_MSC_D\Conduits\02020907\Figure 1b - GPR, 272 Database_MSC_D\Conduits\02020907.mxd 6/26/2023 Created by: MWI Corrodiane System, NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



AOI7-BH-16-024	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.004 U	0.0007 J
Ethyl Benzene	0.004 U	0.004 U
1,3,5-Trimethylbenzene	0.004 U	0.004 U
SVOCS		
Benzo(a)pyrene	0.014 J	0.012 J
Metals		
Lead	6.35	8.79

AOI7-BH-16-035	0-2(ft)
VOCs	
Benzene	0.002 J
Ethyl Benzene	0.004 U
1,3,5-Trimethylbenzene	0.004 U
SVOCS	
Benzo(a)pyrene	0.55
Metals	
Lead	59.9

GPR281-10	3.5-4(ft)
VOCs	
Benzene	0.0011 U
Ethyl Benzene	0.0022 U
1,3,5-Trimethylbenzene	0.0044 U
SVOCS	
Benzo(a)pyrene	1.9
Metals	
Lead	363

GPR281-12	4.5-5(ft)
VOCs	
Benzene	0.00036 J
Ethyl Benzene	0.00216 J
1,3,5-Trimethylbenzene	0.0022 U
SVOCS	
Benzo(a)pyrene	0.74 U
Metals	
Lead	162

AOI7-BH-16-009	0-2(ft)
VOCs	
Benzene	0.002 J
Ethyl Benzene	0.005 U
1,3,5-Trimethylbenzene	0.005 U
SVOCS	
Benzo(a)pyrene	0.26
Metals	
Lead	526 (C)

1231-03	0-2(ft)
VOCs	
Benzene	0.001 / 0.0047
Ethyl Benzene	0.001 U / 0.001 U
1,3,5-Trimethylbenzene	0.0021 U / 0.0021 U
SVOCS	
Benzo(a)pyrene	0.101 / 0.0531
Metals	
Lead	198 / 233

AOI7-BH-16-012	0-2(ft)
VOCs	
Benzene	0.079 J
Ethyl Benzene	0.64 U
1,3,5-Trimethylbenzene	0.64 U
SVOCS	
Benzo(a)pyrene	1.5
Metals	
Lead	295

1231-01	0-2(ft)	3-4(ft)
VOCs		
Benzene	0.00055 U	0.00046 U
Ethyl Benzene	0.0011 U	0.00092 U
1,3,5-Trimethylbenzene	0.0022 U	0.0018 U
SVOCS		
Benzo(a)pyrene	0.036 U	0.035 U
Metals		
Lead	29.2	3.3

AOI7-BH-16-011	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.006 U	0.006 U
Ethyl Benzene	0.006 U	0.006 U
1,3,5-Trimethylbenzene	0.006 U	0.006 U
SVOCS		
Benzo(a)pyrene	0.81	1.5
Metals		
Lead	321	439

Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Berm Boundary/Concrete Pad
- Max. Horiz. Extent of AST-Release Related Conc > Non-Res MSCs
- Associated Piping
- Evergreen Monitoring Well
- PESRM Soil Sample Location**
 - Exceeds S-GW MSC
 - No Exceedances
- Evergreen Soil Sample Location**
 - Exceeds VI SL
 - Exceeds S-GW MSC
 - Exceeds DC MSC
 - No Exceedances

Sample Location	Sample Location	Sample Location
AOI7-BH-16-011	AOI7-BH-16-011	AOI7-BH-16-011
VOCs	Benzene	0.006 U
1,2-Dibromomethane	0.020 U	
Ethyl Benzene	0.011 J	
Toluene	0.024 U	
1,2,4-Trimethylbenzene	0.12 U	
1,3,5-Trimethylbenzene	0.12 U	
SVOCS		
Benzo(a)pyrene	0.81	
Metals		
Lead	321	

Qualifiers:
 U -- Not Detected
 J -- Estimated Concentration
 D -- Unknown Qualifier

Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DE MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI SL

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).

Chemical	(A) PADEP Non-Res Direct Contact with Surface Soil (0-2 ft) MSCs (mg/kg)	(B) PADEP Non-Res Direct Contact with Subsurface Soil (2-15 ft) MSCs (mg/kg)	(C) PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	(D) PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs				
Benzene	280	330	0.5	0.13
Ethyl Benzene	880	1000	70	46
1,3,5-Trimethylbenzene	4700	5400	93	93
SVOCS				
Benzo(a)pyrene	91	190000	46	--
Metals				
Lead	1000	190000	450	--

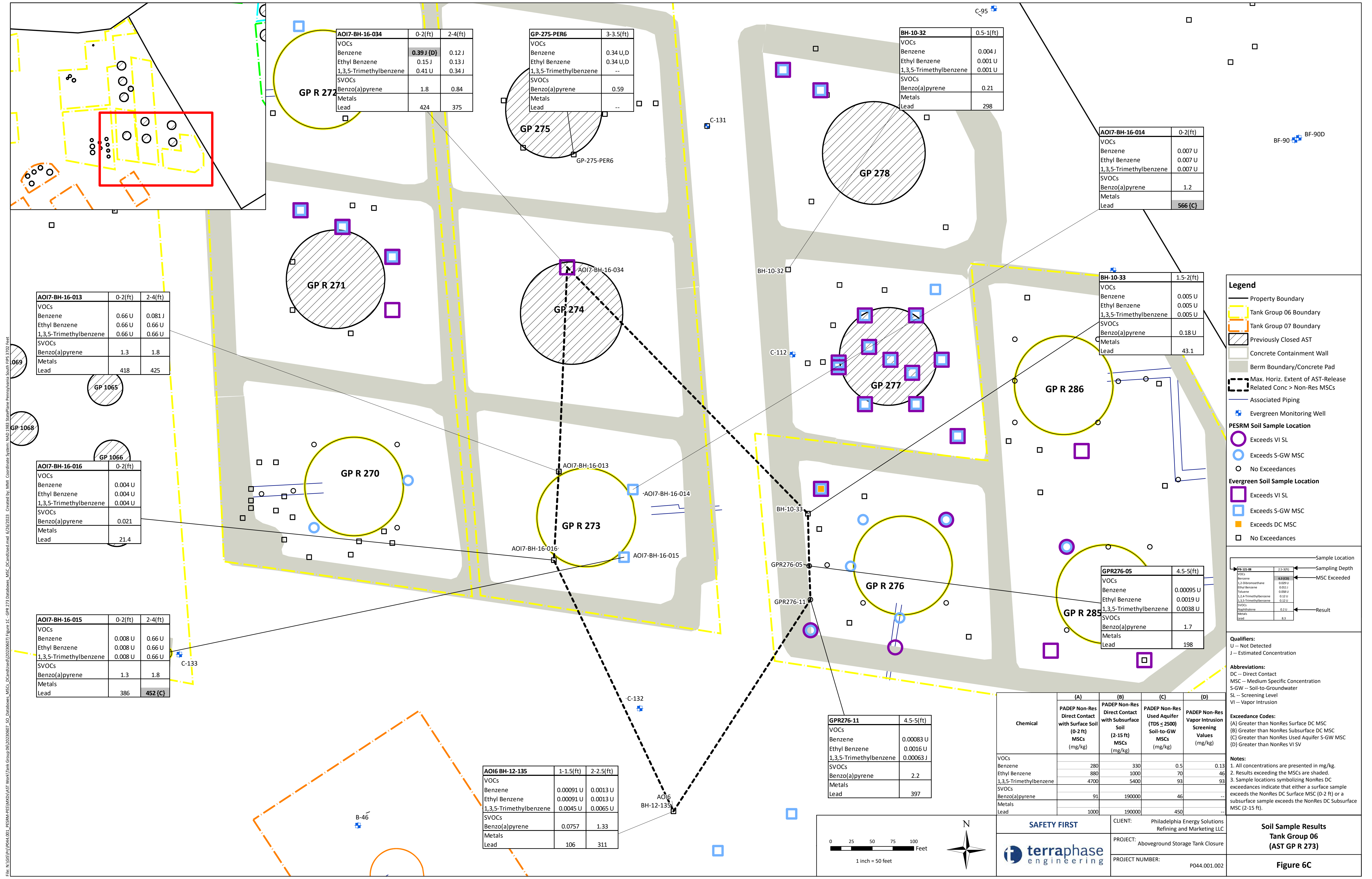
0 25 50 75 100 Feet
 1 inch = 50 feet

SAFETY FIRST
 PHILADELPHIA ENERGY SOLUTIONS
 Refining and Marketing LLC

terra phase engineering

PROJECT: Aboveground Storage Tank Closure
 PROJECT NUMBER: P044.001.002

Soil Sample Results
Tank Group 06
(AST GPR 272)
Figure 6B



AOI7-BH-16-034	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.39 J (D)	0.12 J
Ethyl Benzene	0.15 J	0.13 J
1,3,5-Trimethylbenzene	0.41 U	0.34 J
SVOCs		
Benzo(a)pyrene	1.8	0.84
Metals		
Lead	424	375

GP-275-PER6	3-3.5(ft)
VOCs	
Benzene	0.34 U,D
Ethyl Benzene	0.34 U,D
1,3,5-Trimethylbenzene	--
SVOCs	
Benzo(a)pyrene	0.59
Metals	
Lead	--

BH-10-32	0.5-1(ft)
VOCs	
Benzene	0.004 J
Ethyl Benzene	0.001 U
1,3,5-Trimethylbenzene	0.001 U
SVOCs	
Benzo(a)pyrene	0.21
Metals	
Lead	298

AOI7-BH-16-014	0-2(ft)
VOCs	
Benzene	0.007 U
Ethyl Benzene	0.007 U
1,3,5-Trimethylbenzene	0.007 U
SVOCs	
Benzo(a)pyrene	1.2
Metals	
Lead	566 (C)

AOI7-BH-16-013	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.66 U	0.081 J
Ethyl Benzene	0.66 U	0.66 U
1,3,5-Trimethylbenzene	0.66 U	0.66 U
SVOCs		
Benzo(a)pyrene	1.3	1.8
Metals		
Lead	418	425

AOI7-BH-16-016	0-2(ft)
VOCs	
Benzene	0.004 U
Ethyl Benzene	0.004 U
1,3,5-Trimethylbenzene	0.004 U
SVOCs	
Benzo(a)pyrene	0.021
Metals	
Lead	21.4

AOI7-BH-16-015	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.008 U	0.66 U
Ethyl Benzene	0.008 U	0.66 U
1,3,5-Trimethylbenzene	0.008 U	0.66 U
SVOCs		
Benzo(a)pyrene	1.3	1.8
Metals		
Lead	386	452 (C)

AOI6 BH-12-135	1-1.5(ft)	2-2.5(ft)
VOCs		
Benzene	0.00091 U	0.0013 U
Ethyl Benzene	0.00091 U	0.0013 U
1,3,5-Trimethylbenzene	0.0045 U	0.0065 U
SVOCs		
Benzo(a)pyrene	0.0757	1.33
Metals		
Lead	106	311

GPR276-11	4.5-5(ft)
VOCs	
Benzene	0.00083 U
Ethyl Benzene	0.0016 U
1,3,5-Trimethylbenzene	0.00063 J
SVOCs	
Benzo(a)pyrene	2.2
Metals	
Lead	397

GPR276-05	4.5-5(ft)
VOCs	
Benzene	0.00095 U
Ethyl Benzene	0.0019 U
1,3,5-Trimethylbenzene	0.0038 U
SVOCs	
Benzo(a)pyrene	1.7
Metals	
Lead	198

Legend

- Property Boundary
- Tank Group 06 Boundary
- Tank Group 07 Boundary
- Previously Closed AST
- Concrete Containment Wall
- Berm Boundary/Concrete Pad
- Max. Horiz. Extent of AST-Release Related Conc > Non-Res MSCs
- Associated Piping
- Evergreen Monitoring Well

PESRM Soil Sample Location

- Exceeds VI SL
- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds VI SL
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Sample Location		2.5-3(ft)
VOCs		
Benzene	0.009 U	
1,2-Dibromothane	0.09 U	
Toluene	0.28 U	
1,2,4-Trimethylbenzene	0.32 U	
1,3,5-Trimethylbenzene	0.32 U	
SVOCs		
Naphthalene	0.2 U	
Metals		
Lead	8.3	

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

Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DC MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI SL

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).

Chemical	(A)	(B)	(C)	(D)
	PADEP Non-Res Direct Contact with Surface Soil (0-2 ft) MSCs (mg/kg)	PADEP Non-Res Direct Contact with Subsurface Soil (2-15 ft) MSCs (mg/kg)	PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs				
Benzene	280	330	0.5	0.13
Ethyl Benzene	880	1000	70	46
1,3,5-Trimethylbenzene	4700	5400	93	93
SVOCs				
Benzo(a)pyrene	91	190000	46	--
Metals				
Lead	1000	190000	450	--

0 25 50 75 100 Feet
 1 inch = 50 feet

SAFETY FIRST

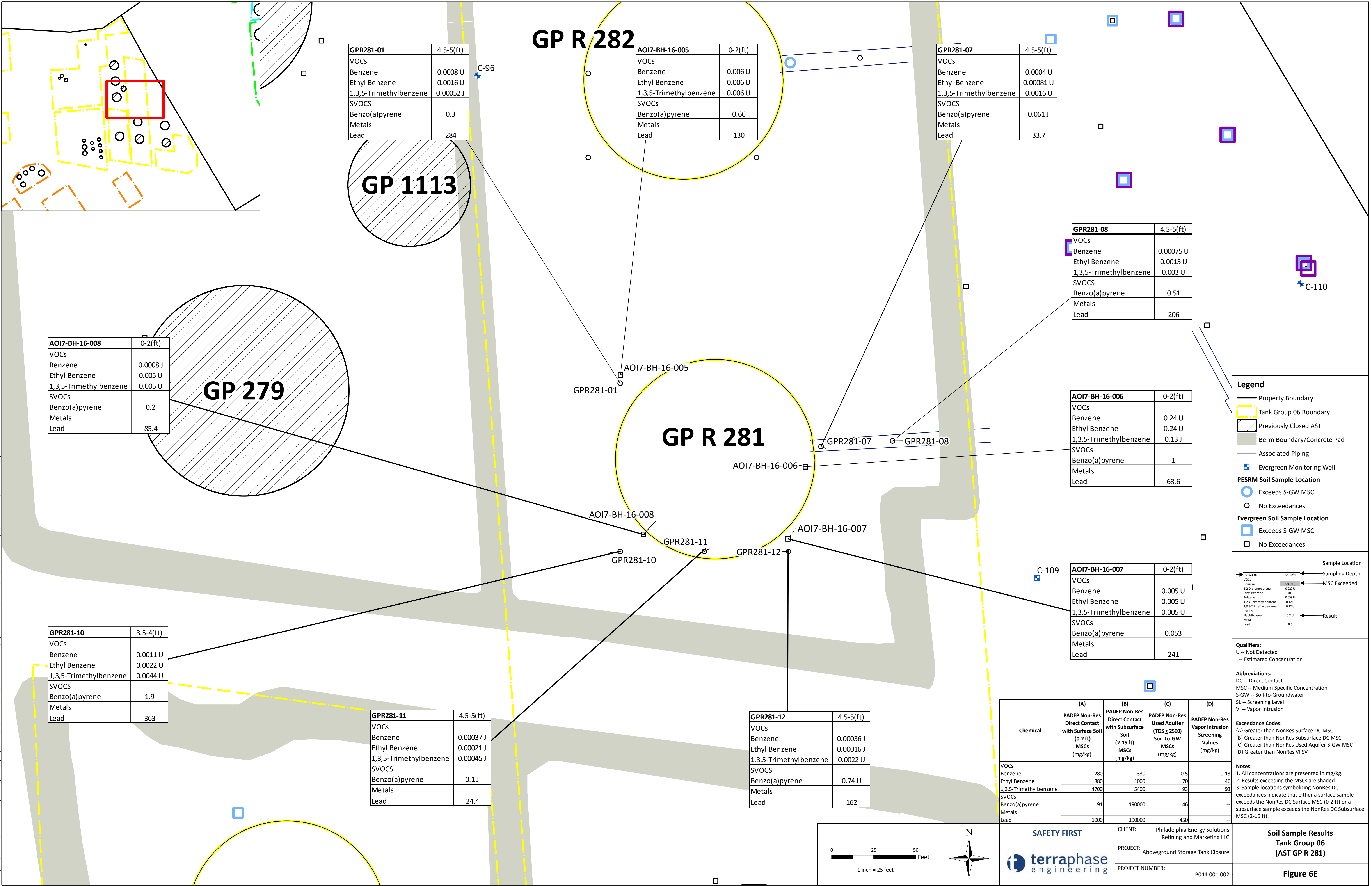
terra phase engineering

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

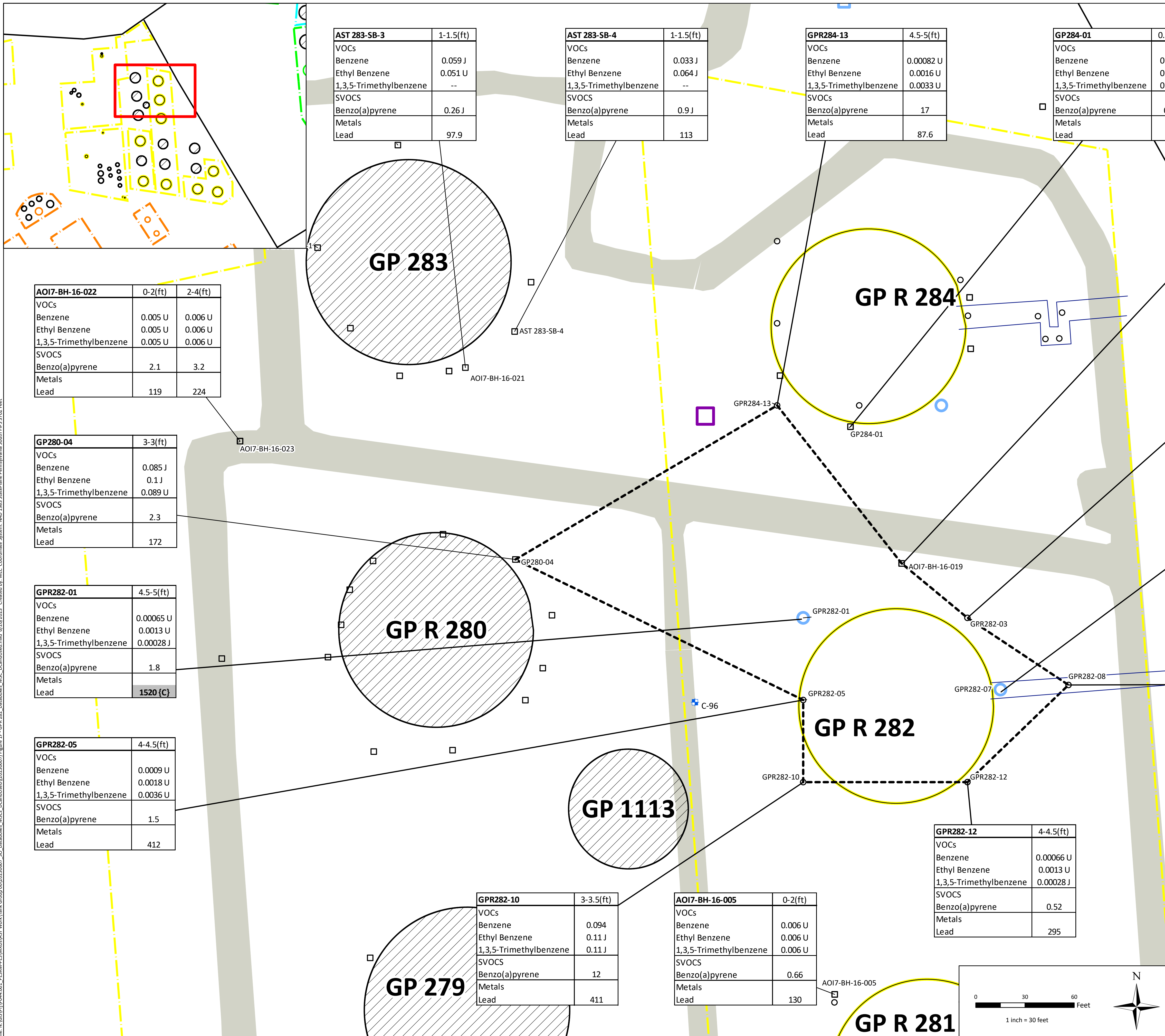
Soil Sample Results
Tank Group 06
(AST GP R 273)
Figure 6C

File: N:\GIS\BYP\044_001_PESRM-PESV\03\AST Work\Tank Group 06\20250607_50_Databases_MSC_D\Contour.mxd 6/26/2023 Created by: MWL Coordinates System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

File: N:\GIS\B1\044_001_PESRM-PRES\W02\AST Work\Tank Group 06\20250907_50_Databases_MSCS_DataTables_MSCS_DataTables\20250907\Figure 1E - GPR 281 - Databases_MSCS_DataTables_MSCS_DataTables_South FIPS 5702 Feet



File: N:\GIS\BYP\04_001_PESRM-PIV\04_001_AST Work\Tank Group 06\02050607_S0_Databases\MSCS_D\Combined.mxd 6/26/2023 Created by: M.L.C. Coordinates System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



AST 283-SB-3		1-1.5(ft)
VOCs		
Benzene	0.059 J	
Ethyl Benzene	0.051 U	
1,3,5-Trimethylbenzene	--	
SVOCS		
Benzo(a)pyrene	0.26 J	
Metals		
Lead	97.9	

AST 283-SB-4		1-1.5(ft)
VOCs		
Benzene	0.033 J	
Ethyl Benzene	0.064 J	
1,3,5-Trimethylbenzene	--	
SVOCS		
Benzo(a)pyrene	0.9 J	
Metals		
Lead	113	

GPR284-13		4.5-5(ft)
VOCs		
Benzene	0.00082 U	
Ethyl Benzene	0.0016 U	
1,3,5-Trimethylbenzene	0.0033 U	
SVOCS		
Benzo(a)pyrene	17	
Metals		
Lead	87.6	

GP284-01		0.5-1(ft)
VOCs		
Benzene	0.005 U	
Ethyl Benzene	0.005 U	
1,3,5-Trimethylbenzene	0.005 U	
SVOCS		
Benzo(a)pyrene	0.44 J	
Metals		
Lead	--	

AOI7-BH-16-019		0-2(ft)
VOCs		
Benzene	0.0006 J	
Ethyl Benzene	0.004 U	
1,3,5-Trimethylbenzene	0.0002 J	
SVOCS		
Benzo(a)pyrene	0.22	
Metals		
Lead	117	

AOI7-BH-16-022			0-2(ft)	2-4(ft)
VOCs				
Benzene	0.005 U	0.006 U		
Ethyl Benzene	0.005 U	0.006 U		
1,3,5-Trimethylbenzene	0.005 U	0.006 U		
SVOCS				
Benzo(a)pyrene	2.1	3.2		
Metals				
Lead	119	224		

GPR282-03		4.5-5(ft)
VOCs		
Benzene	0.00057 U	
Ethyl Benzene	0.0011 U	
1,3,5-Trimethylbenzene	0.00027 J	
SVOCS		
Benzo(a)pyrene	0.44	
Metals		
Lead	184	

GP280-04		3-3(ft)
VOCs		
Benzene	0.085 J	
Ethyl Benzene	0.1 J	
1,3,5-Trimethylbenzene	0.089 U	
SVOCS		
Benzo(a)pyrene	2.3	
Metals		
Lead	172	

GPR282-07		4-4.5(ft)
VOCs		
Benzene	0.00082 U	
Ethyl Benzene	0.0016 U	
1,3,5-Trimethylbenzene	0.0033 U	
SVOCS		
Benzo(a)pyrene	1.2	
Metals		
Lead	493 (C)	

GPR282-01		4.5-5(ft)
VOCs		
Benzene	0.00065 U	
Ethyl Benzene	0.0013 U	
1,3,5-Trimethylbenzene	0.00028 J	
SVOCS		
Benzo(a)pyrene	1.8	
Metals		
Lead	1520 (C)	

GPR282-08		4.5-5(ft)
VOCs		
Benzene	0.00098 U	
Ethyl Benzene	0.00029 J	
1,3,5-Trimethylbenzene	0.0014 J	
SVOCS		
Benzo(a)pyrene	2	
Metals		
Lead	343	

GPR282-05		4-4.5(ft)
VOCs		
Benzene	0.0009 U	
Ethyl Benzene	0.0018 U	
1,3,5-Trimethylbenzene	0.0036 U	
SVOCS		
Benzo(a)pyrene	1.5	
Metals		
Lead	412	

GPR282-10		3-3.5(ft)
VOCs		
Benzene	0.094	
Ethyl Benzene	0.11 J	
1,3,5-Trimethylbenzene	0.11 J	
SVOCS		
Benzo(a)pyrene	12	
Metals		
Lead	411	

AOI7-BH-16-005		0-2(ft)
VOCs		
Benzene	0.006 U	
Ethyl Benzene	0.006 U	
1,3,5-Trimethylbenzene	0.006 U	
SVOCS		
Benzo(a)pyrene	0.66	
Metals		
Lead	130	

GPR282-12		4-4.5(ft)
VOCs		
Benzene	0.00066 U	
Ethyl Benzene	0.0013 U	
1,3,5-Trimethylbenzene	0.00028 J	
SVOCS		
Benzo(a)pyrene	0.52	
Metals		
Lead	295	

Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Berm Boundary/Concrete Pad
- Max. Horiz. Extent of AST-Related Conc. > Non-Res MSCs
- Associated Piping
- Evergreen Monitoring Well

PESRM Soil Sample Location

- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds VI SL
- No Exceedances

Sample Location

Sample Location	2.5 (ft)
Sampling Depth	3.0 (ft)
MSC Exceeded	1.3 (ft)
Result	8.3

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

Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DE MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).

Chemical	(A) PADEP Non-Res Direct Contact with Surface Soil (0-2 ft) MSCs (mg/kg)	(B) PADEP Non-Res Direct Contact with Subsurface Soil (2-15 ft) MSCs (mg/kg)	(C) PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	(D) PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs				
Benzene	280	330	0.5	0.13
Ethyl Benzene	880	1000	70	46
1,3,5-Trimethylbenzene	4700	5400	93	93
SVOCS				
Benzo(a)pyrene	91	190000	46	--
Metals				
Lead	1000	190000	450	--

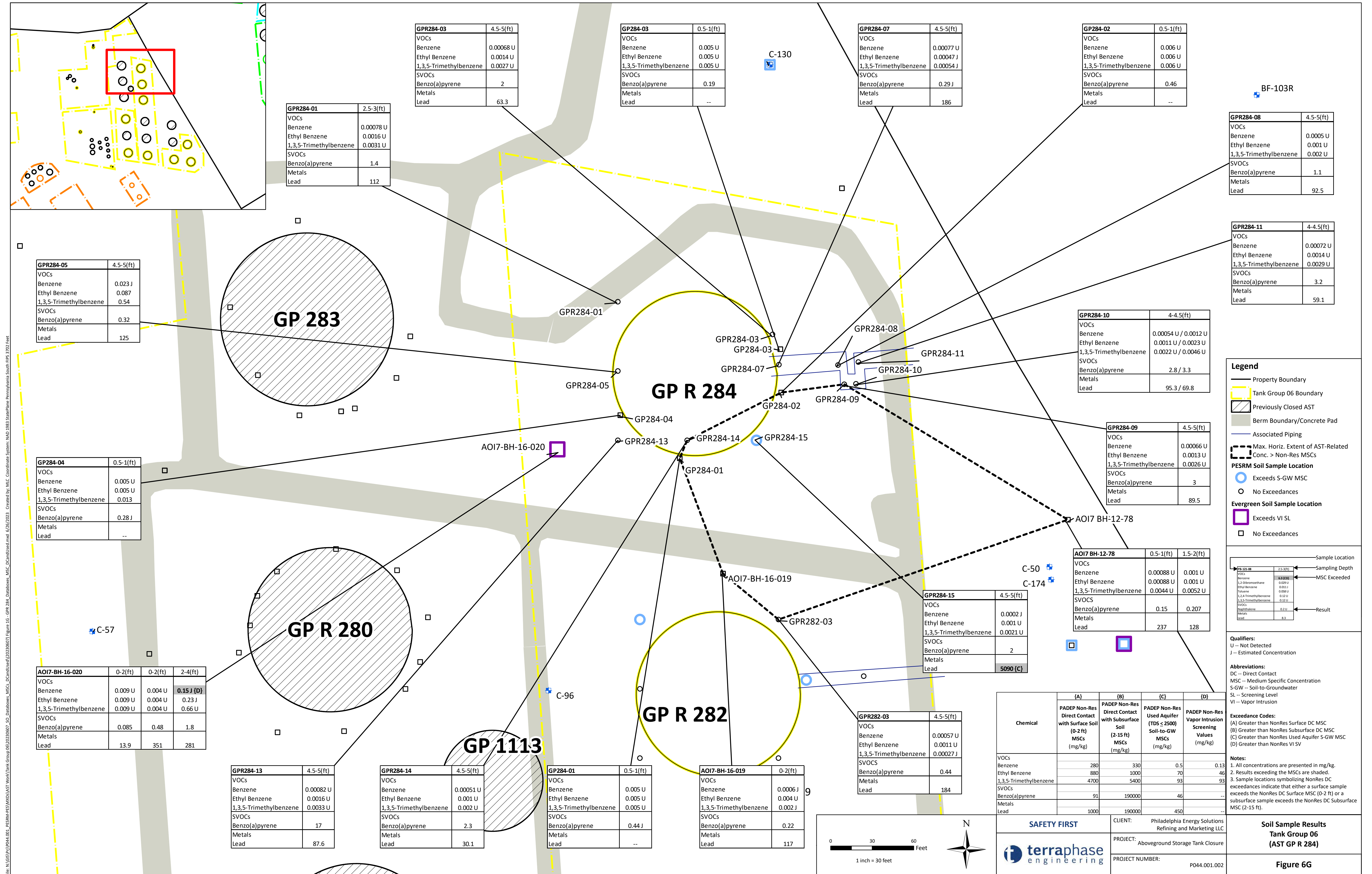
SAFETY FIRST

terra phase engineering

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

Soil Sample Results
Tank Group 06
(AST GP R 282)

Figure 6F



File: N:\GIS\BYP\0404_001_PESRM-PRESV\03\AST\Work\Tank Group 06\20250607_S0_Databases_MSCS_D\Condit\cond_6/26/2023_Created by: MLC_Conditiate System: MAG_1983 StatePlane_Pennsylvania South FIPS 3702 Feet

Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Berm Boundary/Concrete Pad
- Associated Piping
- Max. Horiz. Extent of AST-Related Conc. > Non-Res MSCs
- PESRM Soil Sample Location**
- Exceeds S-GW MSC
- No Exceedances
- Evergreen Soil Sample Location**
- Exceeds VI SL
- No Exceedances

Sample Location	Sampling Depth	MSC Exceeded	Result
AOI7-BH-12-78	2.5-3.0 ft	Yes	VOCs: Benzene 0.0008 U, Ethyl Benzene 0.0008 U, 1,3,5-Trimethylbenzene 0.0044 U SVOCs: Benzo(a)pyrene 0.15 Metals: Lead 237

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

Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DE MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI SV

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).

Chemical	(A) PADEP Non-Res Direct Contact with Surface Soil (0-2 ft) MSCs (mg/kg)	(B) PADEP Non-Res Direct Contact with Subsurface Soil (2-15 ft) MSCs (mg/kg)	(C) PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	(D) PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs				
Benzene	280	330	0.5	0.13
Ethyl Benzene	880	1000	70	46
1,3,5-Trimethylbenzene	4700	5400	93	93
SVOCs				
Benzo(a)pyrene	91	190000	46	--
Metals				
Lead	1000	190000	450	--

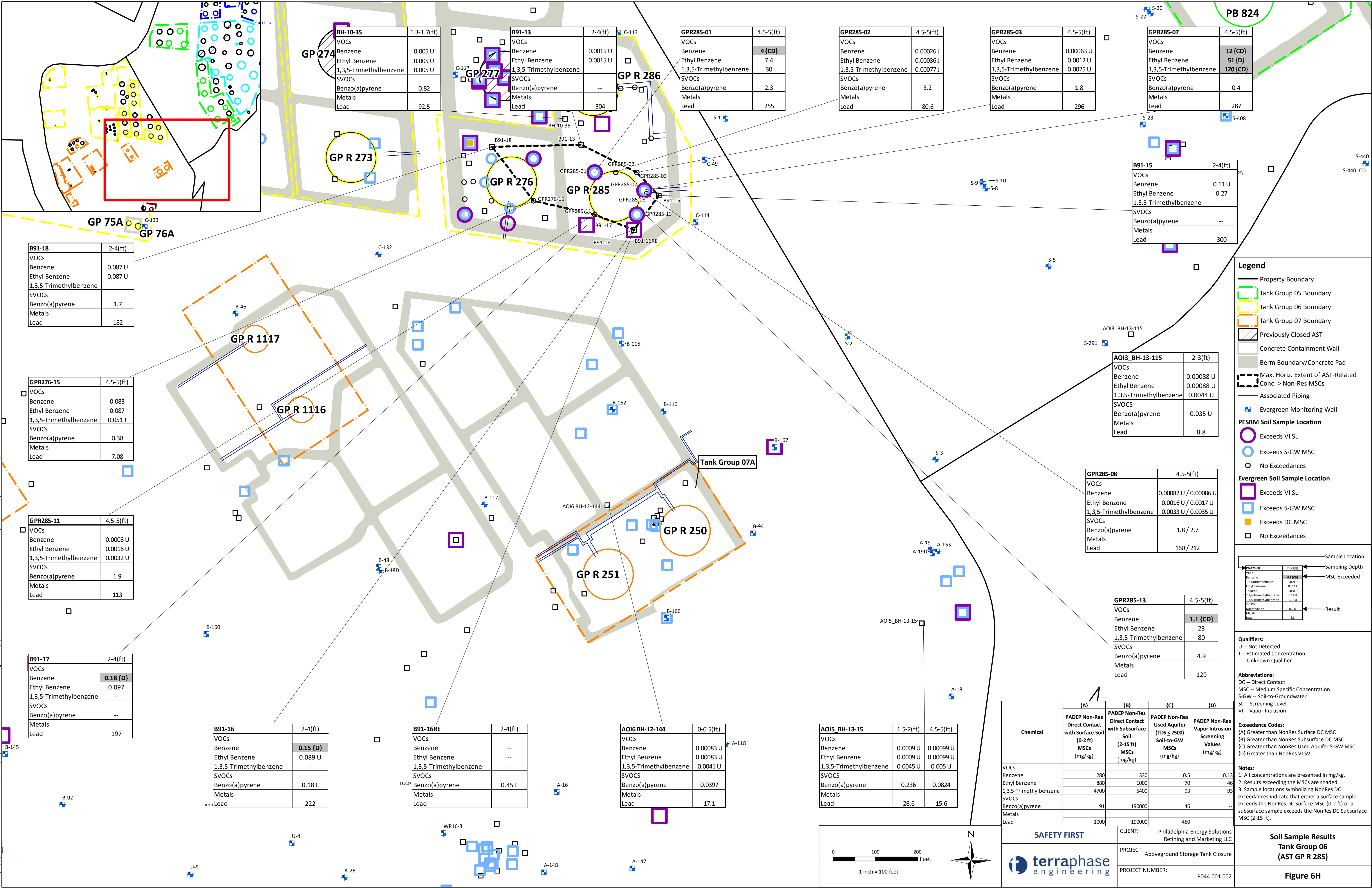
SAFETY FIRST

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

0 30 60 Feet
 1 inch = 30 feet

Soil Sample Results
Tank Group 06
(AST GP R 284)

Figure 6G



Legend

- Property Boundary
- ▭ Tank Group 05 Boundary
- ▭ Tank Group 06 Boundary
- ▭ Tank Group 07 Boundary
- ▭ Previously Closed AST
- ▭ Concrete Containment Wall
- ▭ Berm Boundary/Concrete Pad
- ▭ Max. Horiz. Extent of AST-Related Conc. > Non-Res MSCs
- Associated Piping
- ⊕ Evergreen Monitoring Well
- ⊕ PESRM Soil Sample Location
- ⊕ Exceeds VI SL
- ⊕ Exceeds S-GW MSC
- No Exceedances
- ⊕ Evergreen Soil Sample Location
- ⊕ Exceeds VI SL
- ⊕ Exceeds S-GW MSC
- ⊕ Exceeds DC MSC
- ⊕ No Exceedances

Sample Location	Sampling Depth	MSC Exceeded	Result
GP-R28-08	2.5-3ft	1.1 {CD}	VOCs: Benzene 0.00088 U, Ethyl Benzene 0.00088 U, 1,3,5-Trimethylbenzene 0.0044 U, SVOCs: Benzo(a)pyrene 0.035 U, Metals: Lead 8.8

Qualifiers:
 U -- Not Detected
 J -- Estimated Concentration
 L -- Unknown Qualifier

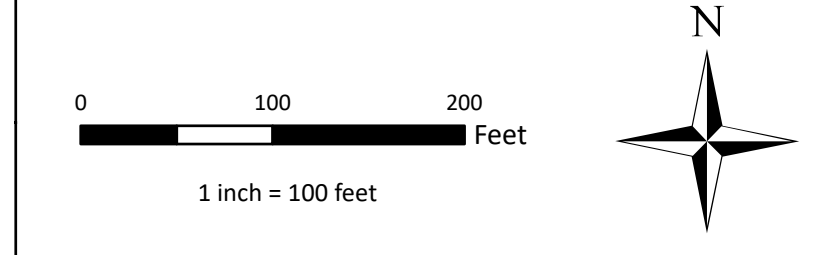
Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DE MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI SL

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).

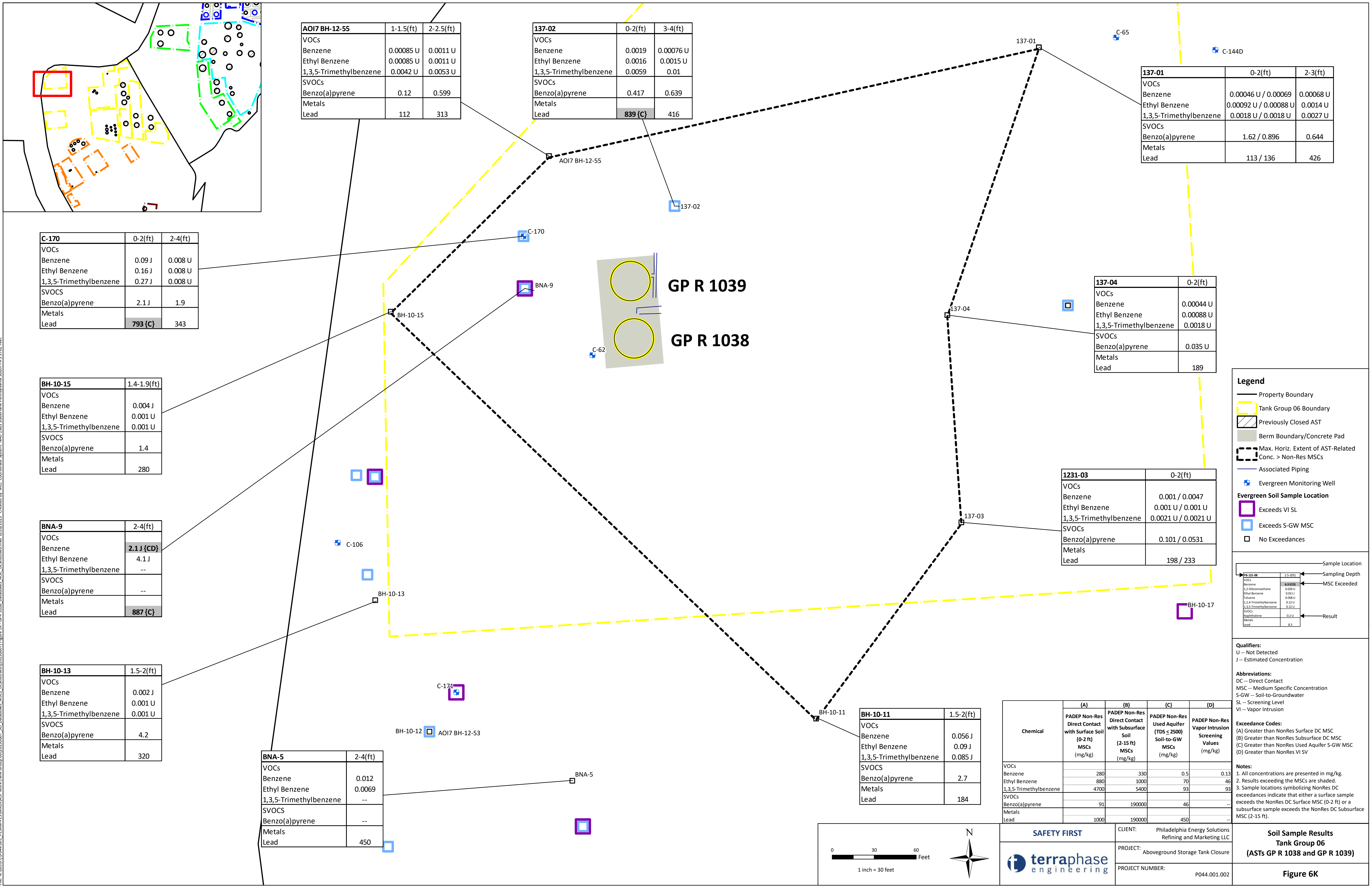
Chemical	(A) PADEP Non-Res Direct Contact with Surface Soil (0-2ft) MSCs (mg/kg)	(B) PADEP Non-Res Direct Contact with Subsurface Soil (2-15ft) MSCs (mg/kg)	(C) PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	(D) PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs	280	330	0.5	0.13
Benzene	880	1000	70	46
Ethyl Benzene	4700	5400	93	93
1,3,5-Trimethylbenzene	91	190000	46	--
SVOCs	1000	190000	450	--
Benzo(a)pyrene				
Metals				
Lead				

SAFETY FIRST		CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Soil Sample Results Tank Group 06 (AST GP R 285)
t terraphase engineering		PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		Figure 6H	



File: N:\GIS\PI\P044_001_PESRM\PIESV\03\AST Work\Tank Group 06\03\280807\Figure 6H - GPR 285 Databases - MSCs - D:\Condu\red\red\20230607\Figure 6H - GPR 285 Databases - MSCs - D:\Condu\red\red\20230607\Created by: M.L.C. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5002 Feet

File: N:\GIS\BYP\044_001_PESRM-PEV\W02\AST Work\Tank Group 06\20250607_S0_Database_MSC_DC\indirect.mxd 6/26/2023 Created by: MLC_Coordinate_Systems_MAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



AOI7 BH-12-55	1-1.5(ft)	2-2.5(ft)
VOCs		
Benzene	0.00085 U	0.0011 U
Ethyl Benzene	0.00085 U	0.0011 U
1,3,5-Trimethylbenzene	0.0042 U	0.0053 U
SVOCS		
Benzo(a)pyrene	0.12	0.599
Metals		
Lead	112	313

137-02	0-2(ft)	3-4(ft)
VOCs		
Benzene	0.0019	0.00076 U
Ethyl Benzene	0.0016	0.0015 U
1,3,5-Trimethylbenzene	0.0059	0.01
SVOCS		
Benzo(a)pyrene	0.417	0.639
Metals		
Lead	839 (C)	416

137-01	0-2(ft)	2-3(ft)
VOCs		
Benzene	0.00046 U / 0.00069	0.00068 U
Ethyl Benzene	0.00092 U / 0.00088 U	0.0014 U
1,3,5-Trimethylbenzene	0.0018 U / 0.0018 U	0.0027 U
SVOCS		
Benzo(a)pyrene	1.62 / 0.896	0.644
Metals		
Lead	113 / 136	426

C-170	0-2(ft)	2-4(ft)
VOCs		
Benzene	0.09 J	0.008 U
Ethyl Benzene	0.16 J	0.008 U
1,3,5-Trimethylbenzene	0.27 J	0.008 U
SVOCS		
Benzo(a)pyrene	2.1 J	1.9
Metals		
Lead	793 (C)	343

BH-10-15	1.4-1.9(ft)
VOCs	
Benzene	0.004 J
Ethyl Benzene	0.001 U
1,3,5-Trimethylbenzene	0.001 U
SVOCS	
Benzo(a)pyrene	1.4
Metals	
Lead	280

BNA-9	2-4(ft)
VOCs	
Benzene	2.1 J (CD)
Ethyl Benzene	4.1 J
1,3,5-Trimethylbenzene	--
SVOCS	
Benzo(a)pyrene	--
Metals	
Lead	887 (C)

BH-10-13	1.5-2(ft)
VOCs	
Benzene	0.002 J
Ethyl Benzene	0.001 U
1,3,5-Trimethylbenzene	0.001 U
SVOCS	
Benzo(a)pyrene	4.2
Metals	
Lead	320

BNA-5	2-4(ft)
VOCs	
Benzene	0.012
Ethyl Benzene	0.0069
1,3,5-Trimethylbenzene	--
SVOCS	
Benzo(a)pyrene	--
Metals	
Lead	450

BH-10-11	1.5-2(ft)
VOCs	
Benzene	0.056 J
Ethyl Benzene	0.09 J
1,3,5-Trimethylbenzene	0.085 J
SVOCS	
Benzo(a)pyrene	2.7
Metals	
Lead	184

Chemical	{A}	{B}	{C}	{D}
	PADEP Non-Res Direct Contact with Surface Soil (0-2 ft) MSCs (mg/kg)	PADEP Non-Res Direct Contact with Subsurface Soil (2-15 ft) MSCs (mg/kg)	PADEP Non-Res Used Aquifer (TDS < 2500) Soil-to-GW MSCs (mg/kg)	PADEP Non-Res Vapor Intrusion Screening Values (mg/kg)
VOCs				
Benzene	280	330	0.5	0.13
Ethyl Benzene	880	1000	70	46
1,3,5-Trimethylbenzene	4700	5400	93	93
SVOCS				
Benzo(a)pyrene	91	190000	46	--
Metals				
Lead	1000	190000	450	--

Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Berm Boundary/Concrete Pad
- Max. Horiz. Extent of AST-Related Conc. > Non-Res MSCs
- Associated Piping
- Evergreen Monitoring Well
- Evergreen Soil Sample Location**
 - Exceeds VI SL
 - Exceeds S-GW MSC
 - No Exceedances

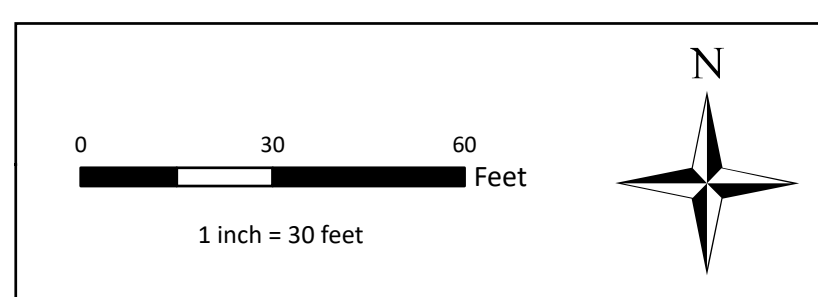
Sample Location	Sample Depth	MSC Exceeded	Result
BH-10-11	2.5-3(f)	839 (C)	839 (C)

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

Abbreviations:
 DC -- Direct Contact
 MSC -- Medium Specific Concentration
 S-GW -- Soil-to-Groundwater
 SL -- Screening Level
 VI -- Vapor Intrusion

Exceedance Codes:
 (A) Greater than NonRes Surface DC MSC
 (B) Greater than NonRes Subsurface DE MSC
 (C) Greater than NonRes Used Aquifer S-GW MSC
 (D) Greater than NonRes VI SV

Notes:
 1. All concentrations are presented in mg/kg.
 2. Results exceeding the MSCs are shaded.
 3. 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).



SAFETY FIRST

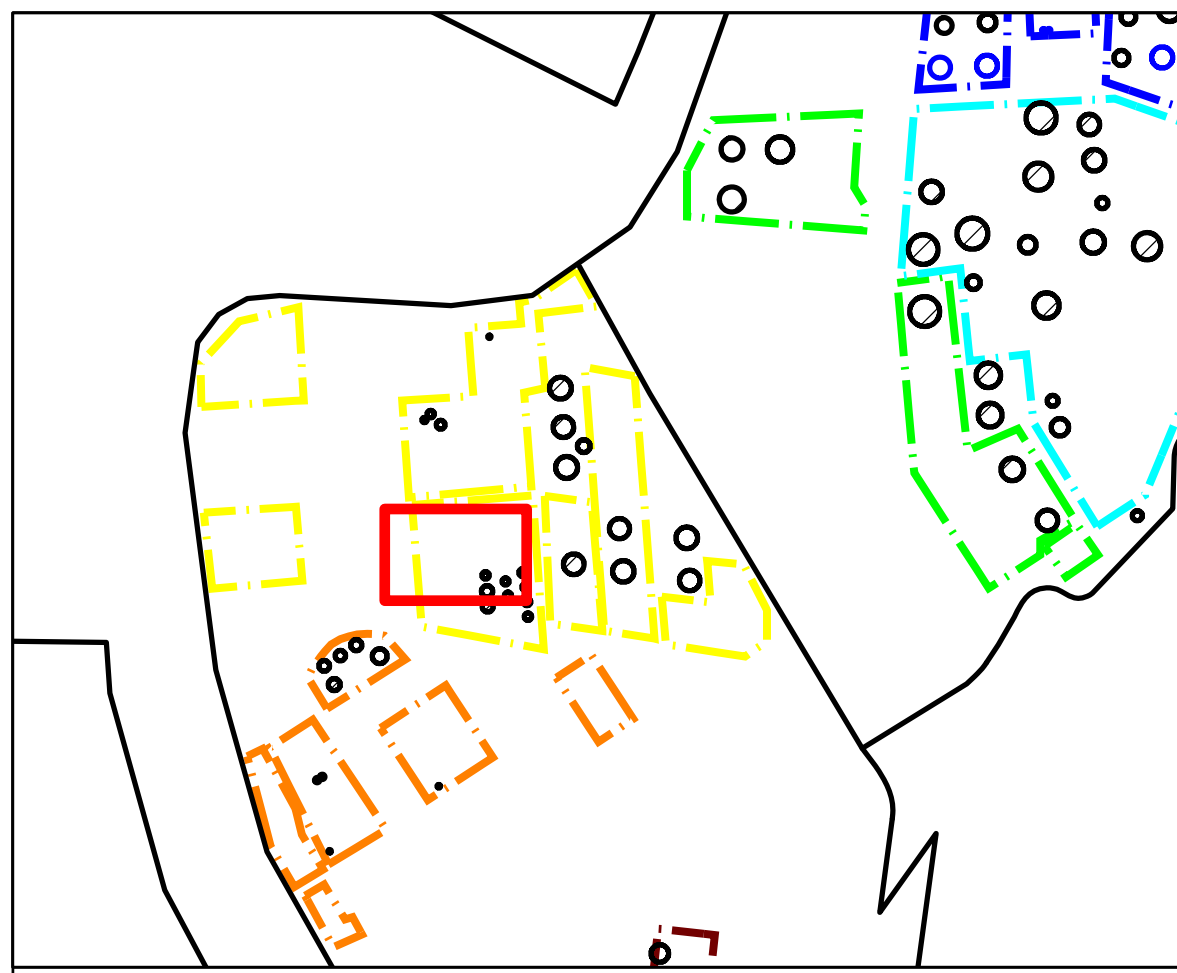
terra phase engineering

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

Soil Sample Results
Tank Group 06
(ASTs GP R 1038 and GP R 1039)

Figure 6K

File: N:\GIS\Proj\044.001_PESRM_PESRM\AST\Work\Tank Group\06\20230607_S0_Databases\MSC_Databases\MSC_Databases\GPR1047_Databases\MSC_Databases\GPR1047_Databases\GPR1047_01.mxd 6/26/2023 Created by: MIC Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



C-55

GPR1047-01	4.5-5(ft)
pH	8.7

GPR1047-03	4-4.5(ft)
pH	8.7 / 10.7

GPR1047-04	4.5-5(ft)
pH	8.8

GPR1047-06	4-4.5(ft)
pH	9

GPR1047-02	4.5-5(ft)
pH	7.5

GPR1047-07	4.5-5(ft)
pH	10.7

GP R 1047

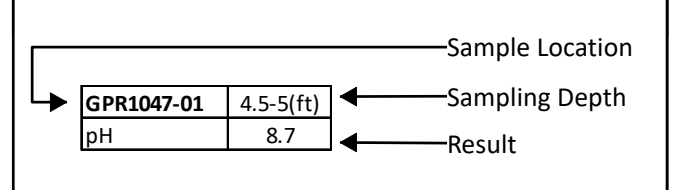
GP 1050

GP 1069

GP R 1051

Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Associated Piping
- Evergreen Monitoring Well
- PESRM Soil Sample Location**
- No Exceedances



Notes:
 1. All pH measurements are presented in SU.
 2. Results exceeding the USEPA's thresholds for identifying corrosivity of wastes (less than or equal to 2 SU or greater than or equal to 12.5 SU) are shaded.

0 25 50 Feet
 1 inch = 25 feet

SAFETY FIRST

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

Soil Sample Results
Tank Group 06
(AST GP R 1047)

Figure 6L

Appendix A

Select Evergreen Figures

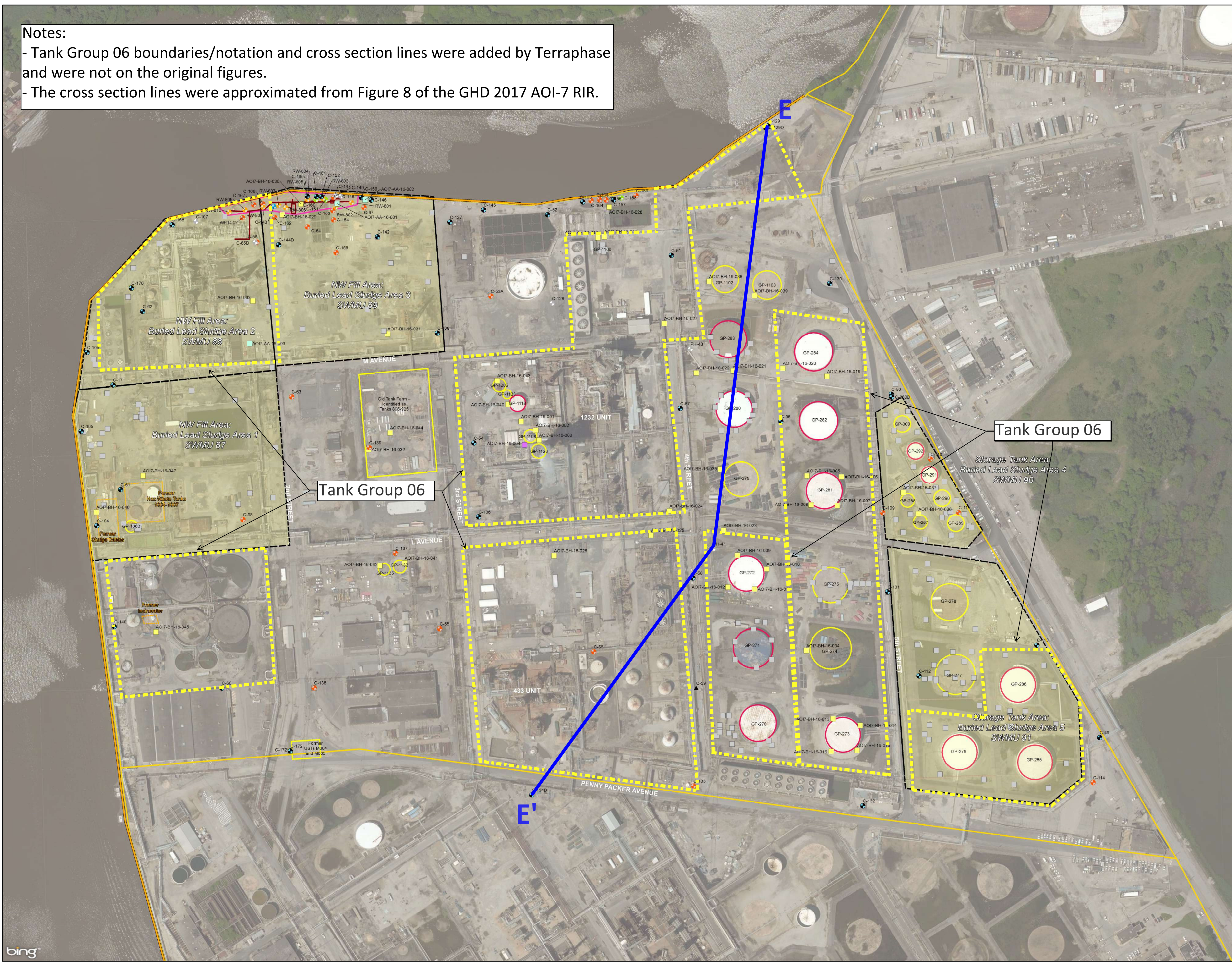
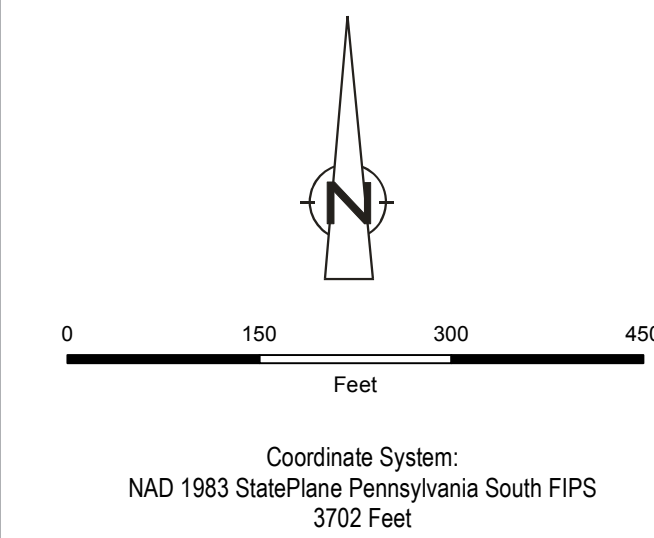


Notes:
 - Tank Group 06 boundaries/notation and cross section lines were added by Terraphase and were not on the original figures.
 - The cross section lines were approximated from Figure 8 of the GHD 2017 AOI-7 RIR.



GHD Limited
 651 Colby Drive
 Waterloo Ontario N2V 1C2 Canada
 T 519 884 0510 F 519 884 0525 W www.ghd.com

Source: Aerial: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



Tank Group 06

Tank Group 06

- Legend**
- 2016 RI Groundwater Sample
 - 2016 RI Soil Sample
 - 2016 RI Soil Sample - not completed
 - Water Table Monitoring Well
 - Recovery Well
 - Deep Monitoring Well
 - Damaged Monitoring Well
 - Destroyed Monitoring Well
 - Monitoring Well (Unable to Locate)
 - Air Sample
 - Historical Soil Sample
 - Bulkhead
 - 3 Separator Remediation System
 - 3 Separator Remediation System
 - Existing Tank
 - Former Tank
 - Features Identified by Evergreen (not PA DEP incidents)
 - Solid Waste Management Unit
 - Area Of Interest

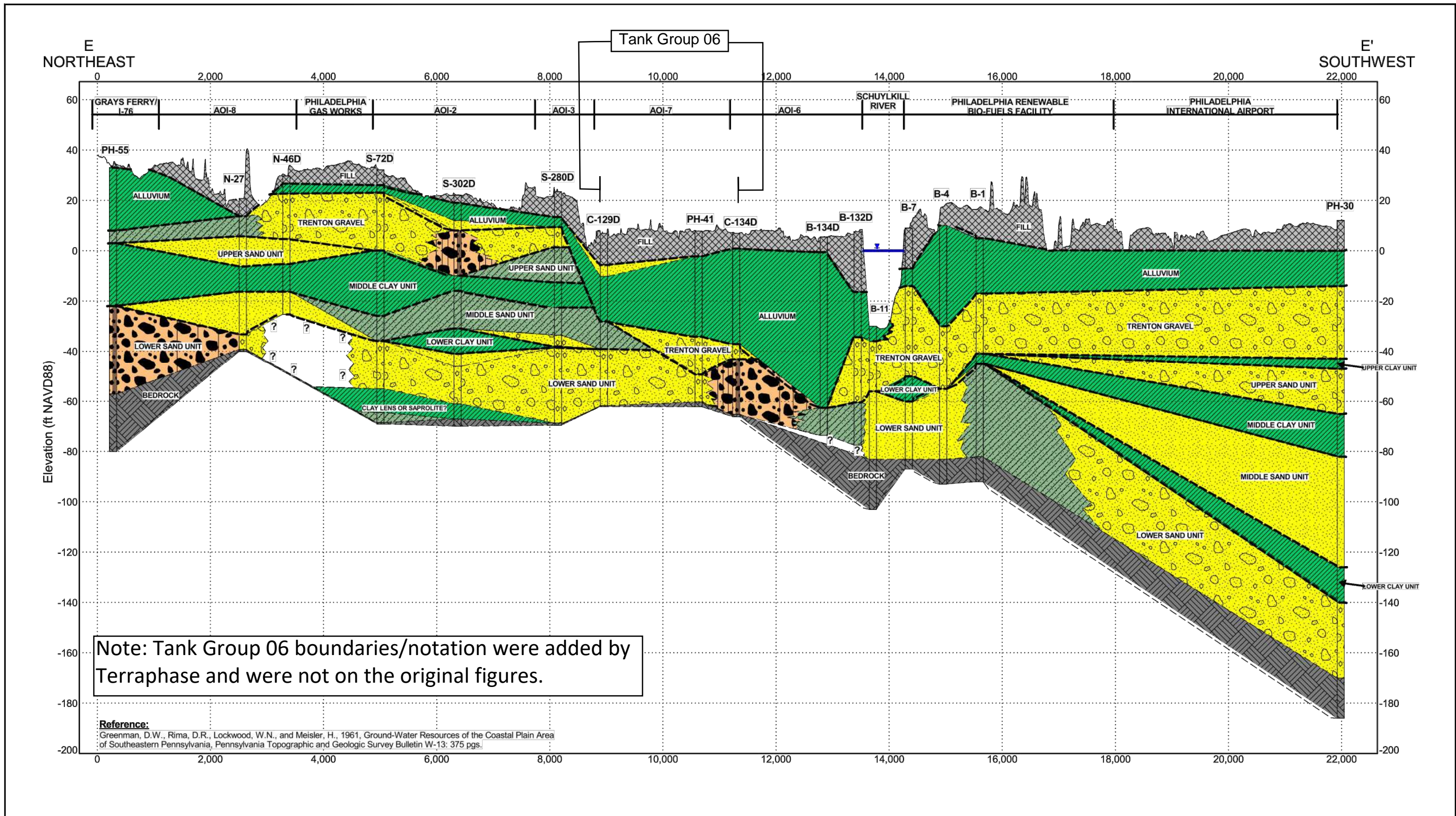
Original Size
ANSI D
 Bar is one inch on original size drawing
 0 — 1"

Project: 11109614
 Date: Mar 28, 2017

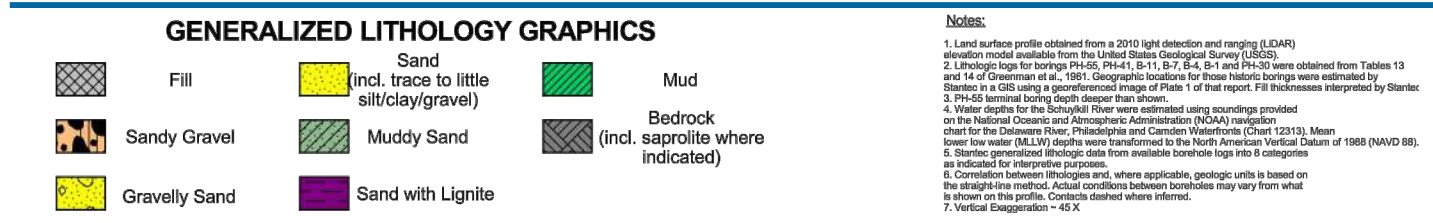
**EVERGREEN RESOURCES MANAGEMENT
 AOI-7 PHILADELPHIA
 REFINERY OPERATIONS**

AOI 7 SITE PLAN

Figure No.
FIGURE 2



SOURCE: PHILADELPHIA REFINERY REMEDIATION PROGRAM GROUNDWATER REMEDIATION STATUS REPORT, FIRST HALF 2016, STANTEC, 2016.



EVERGREEN RESOURCES MANAGEMENT OPERATIONS LLC
PHILADELPHIA REFINERY - 3144 PASSYUNK AVENUE, PHILADELPHIA, PA
REMEDIAL INVESTIGATION REPORT

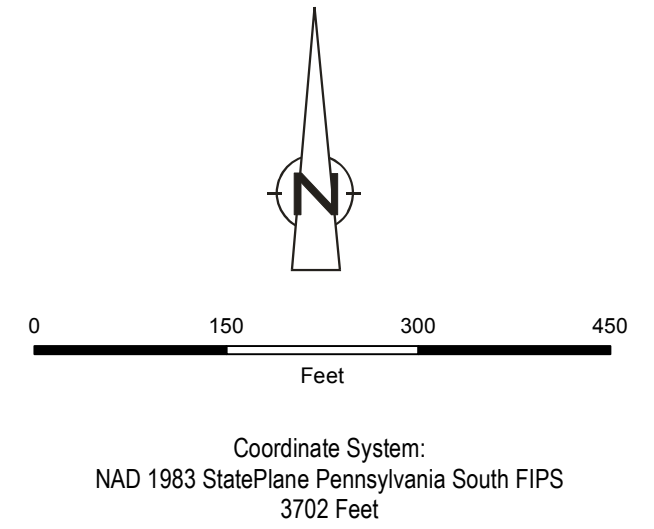
STRATIGRAPHIC PROFILE

11109614-01
Nov 23, 2016

FIGURE 8

Note:
 - Tank Group 06 boundaries/notation were added by Terraphase and were not on the original figures.

Source: Aerial: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



- Legend**
- Groundwater Measurement (ft msl)
 - 2016 RI Soil Sample
 - Water Table Monitoring Well
 - Recovery Well
 - Deep Monitoring Well
 - Damaged Monitoring Well
 - Destroyed Monitoring Well
 - Monitoring Well (Unable to Locate)
 - Historical Soil Sample
 - Bulkhead
 - Groundwater Elevation Contour (ft msl)
 - 3 Separator Remediation System
 - 3 Separator Remediation System
 - Solid Waste Management Unit
 - Area Of Interest

Original Size
ANSI D
 Bar is one inch on original size drawing
 0 — 1"

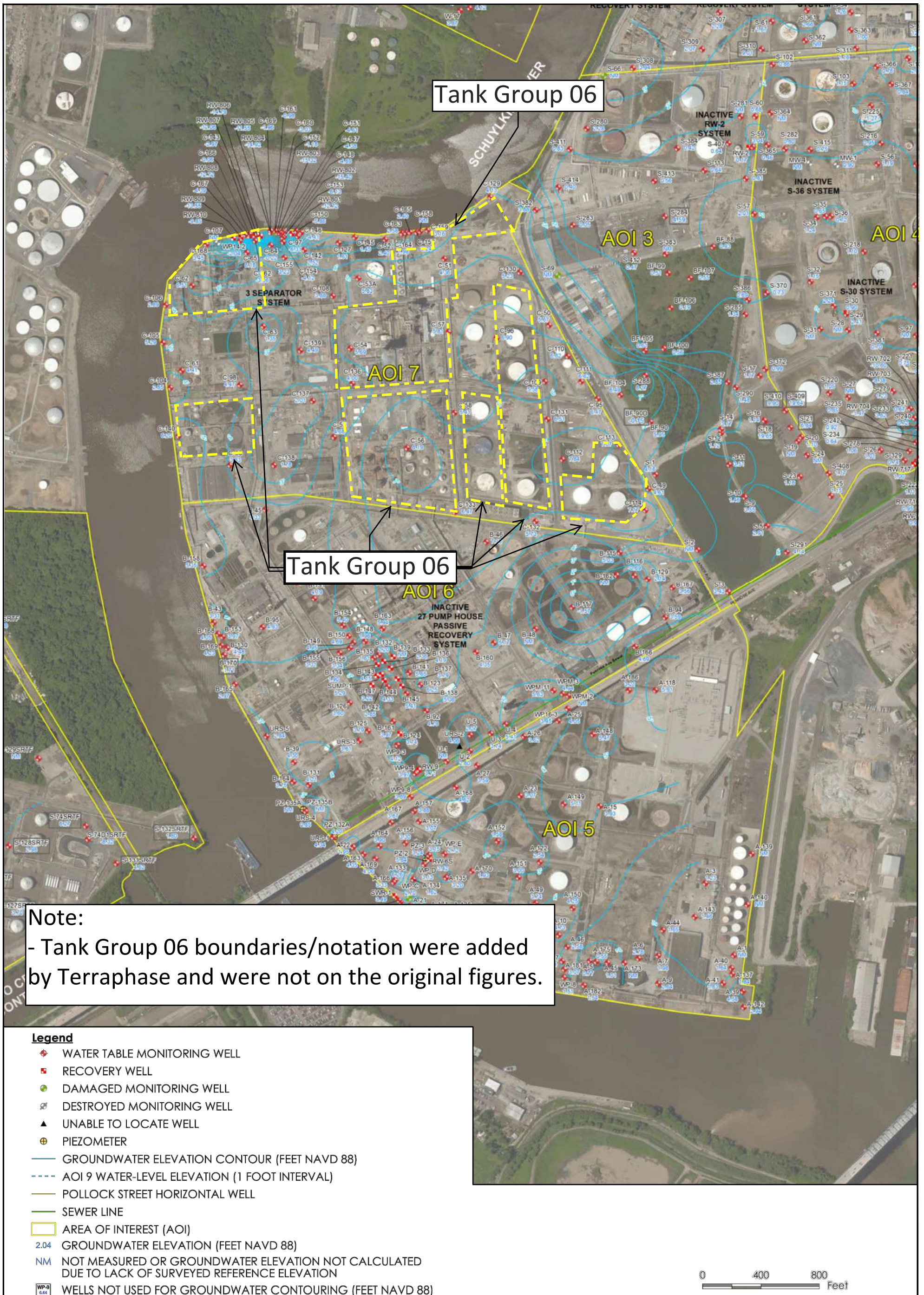
Project : 11109614
 Date: Dec 19, 2016

**EVERGREEN RESOURCES
 MANAGEMENT - AOI-7**

**WATER TABLE
 GROUNDWATER ELEVATIONS
 SEPTEMBER 2016**

Figure No.
FIGURE 14





SOURCE: PHILADELPHIA REFINERY REMEDIATION PROGRAM GROUNDWATER REMEDIATION STATUS REPORT, FIRST HALF 2016, STANTEC, 2016.



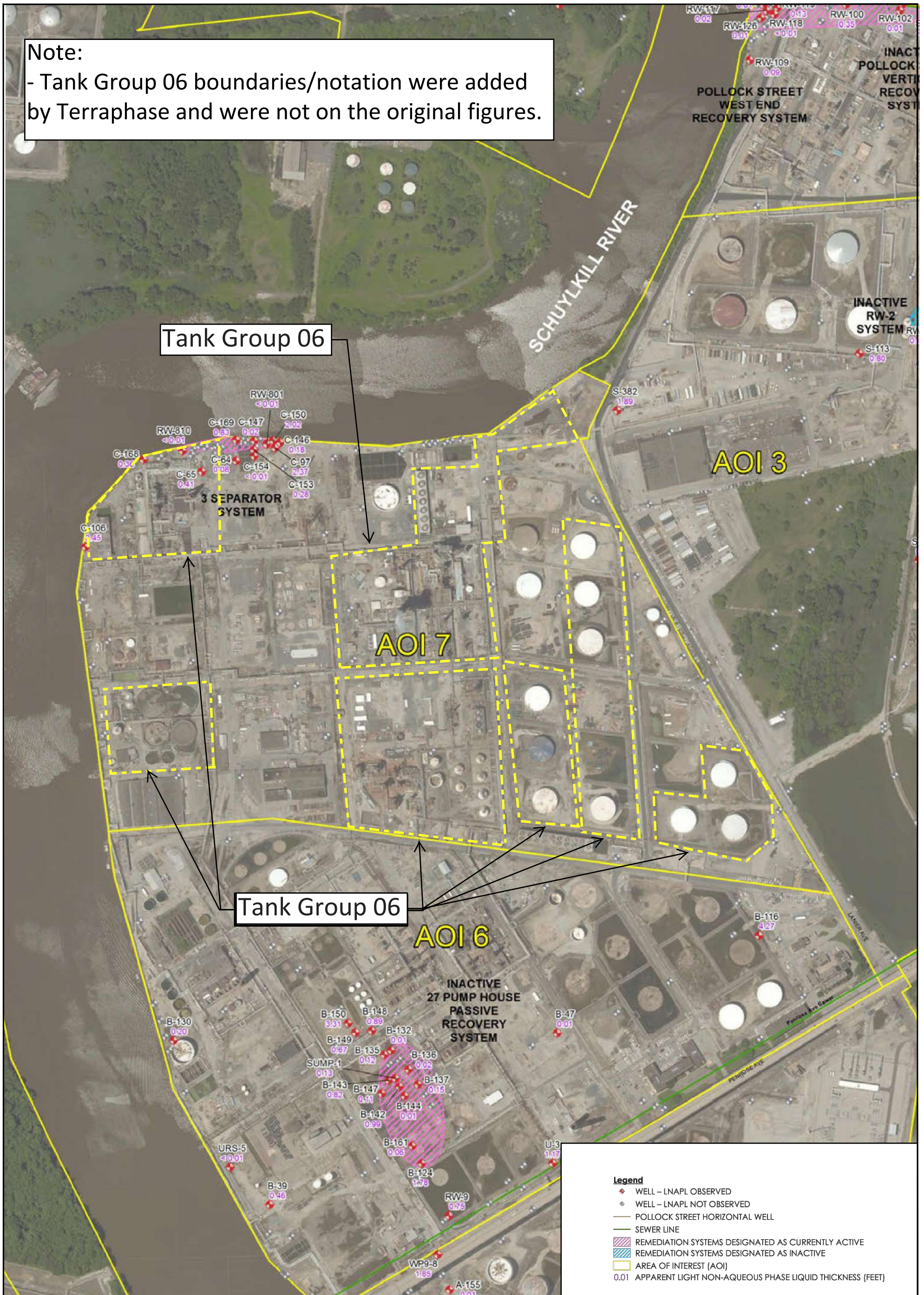
EVERGREEN RESOURCES MANAGEMENT OPERATIONS LLC
 PHILADELPHIA REFINERY - 3144 PASSYUNK AVENUE, PHILADELPHIA, PA
 REMEDIAL INVESTIGATION REPORT
 STANTEC WATER TABLE AQUIFER
 GROUNDWATER ELEVATION MAP - MAY 2016

11109614-01
 Nov 24, 2016

FIGURE 13

Note:

- Tank Group 06 boundaries/notation were added by Terraphase and were not on the original figures.



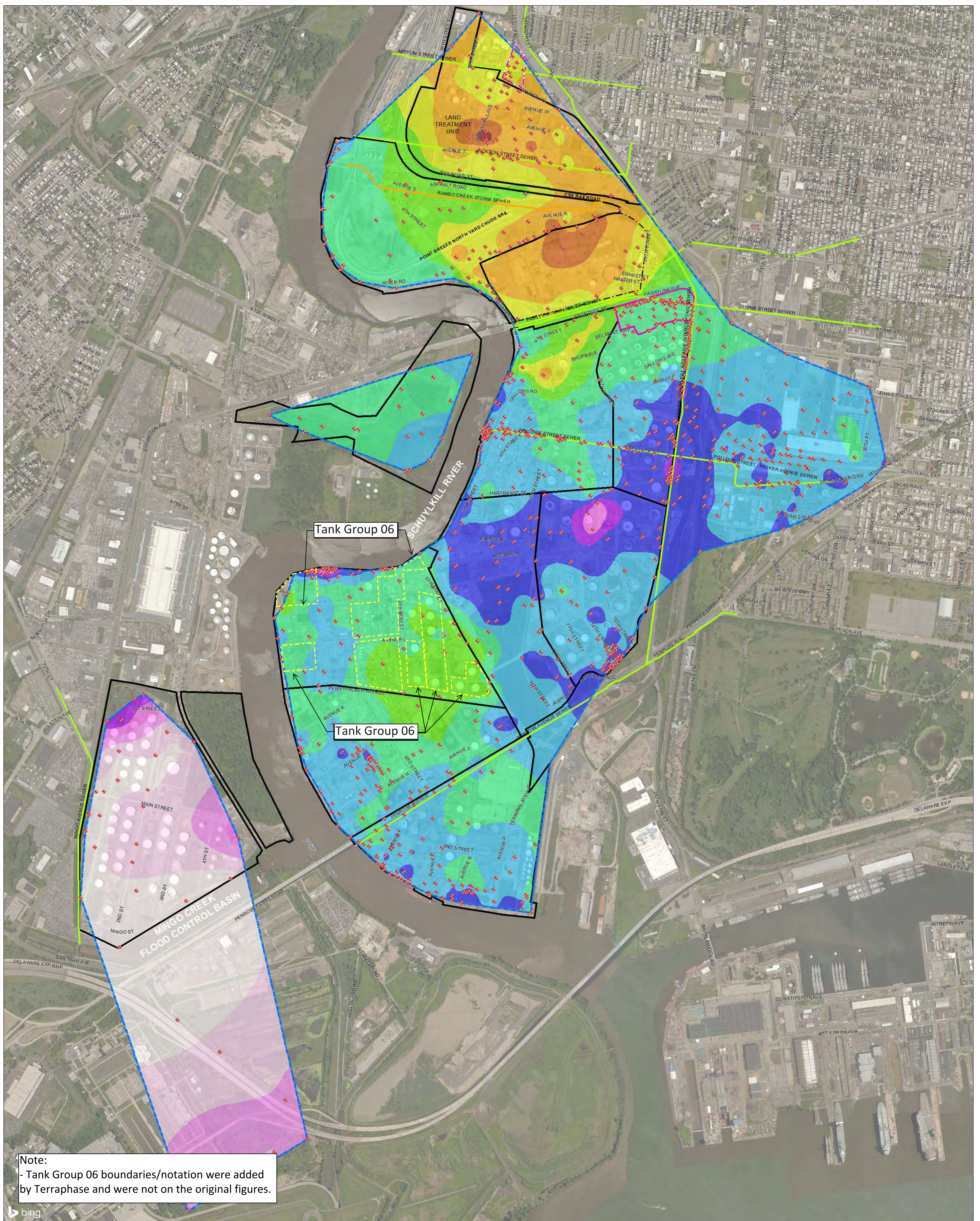
SOURCE: PHILADELPHIA REFINERY REMEDIATION PROGRAM GROUNDWATER REMEDIATION STATUS REPORT, FIRST HALF 2016, STANTEC, 2016.



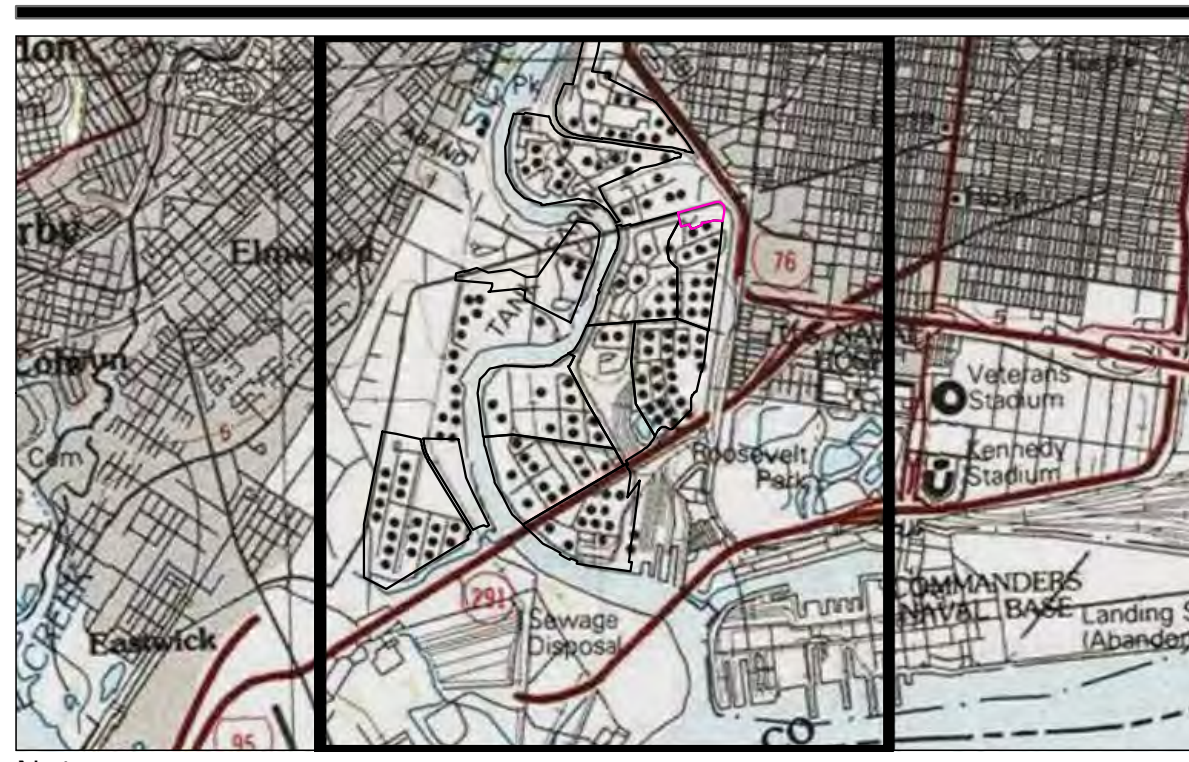
EVERGREEN RESOURCES MANAGEMENT OPERATIONS LLC
 PHILADELPHIA REFINERY - 3144 PASSYUNK AVENUE, PHILADELPHIA, PA
 REMEDIAL INVESTIGATION REPORT
 LNAPL OCCURENCE AND REMEDIAL SYSTEMS,
 MAY 2016

11109614-01
 Nov 7, 2016

FIGURE 16



Note:
 - Tank Group 06 boundaries/notation were added by Terraphase and were not on the original figures.



Notes

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Sources: Stantec, Philadelphia Gas Works (PGW), and Defense Logistics Agency (DLA)
3. Depth to groundwater and LNAPL, where present, were measured in each well to the nearest one-hundredth of a foot using an interface probe.
4. FT NAVD88 = feet referenced to the North American Vertical Datum of 1988
5. Groundwater elevation data was interpolated using point kriging with a linear variogram model in Surfer to produce a surface model. The model is interpreted to be a reasonable approximation of the water-table elevation within the limits of the available well data.
6. Aerial & Topo Copyright: © 2013 National Geographic Society, I-cubed © 2018 Microsoft Corporation © 2018 DigitalGlobe © CNES (2018) Distribution Airbus DS Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

- LEGEND**
- ♦ WELL UTILIZED FOR THE JUNE 2018 WATER-TABLE ELEVATION SURFACE
 - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
 - APPROXIMATE LOCATION OF RAMBO CREEK STORM SEWER
 - PHILADELPHIA GAS WORKS (PGW) PASSYUNK FACILITY
 - VERIZON SOUTH DISTRICT WORK CENTER (SDWC) PROPERTY
 - AREA OF INTEREST (AOI) BOUNDARY
 - BELMONT TERMINAL
 - APPROXIMATE LIMITS OF WATER-TABLE WELL CONTROL

JUNE 2018 WATER-TABLE ELEVATION FT NAVD88

14 - 16
12 - 14
10 - 12
8 - 10
6 - 8
4 - 6
2 - 4
0 - 2
-2 - 0
-4 - -2
-6 - -4
-8 - -6
-10 - -8

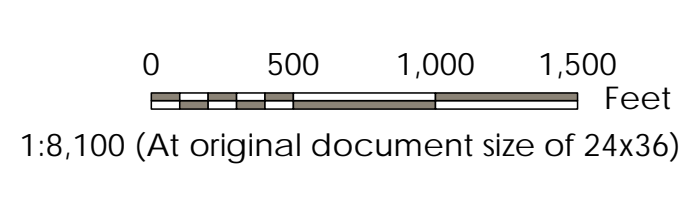


Figure No. **3-29**
 Title **JUNE 2018 WATER-TABLE ELEVATION**

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

Project Location
 City of Philadelphia, Philadelphia County, Pennsylvania

213402454
 Prepared by ADK on 8/14/2018
 Technical Review by ANP on 9/20/2018
 Independent Review by JLM on 10/19/2018



Appendix B

Tank Registration Amendment Forms





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

May 25, 2023

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401

Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

**Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM)
PADEP Storage Tanks Registration/Permitting Application Form PADEP Facility ID #51-33624 – Girard
Point Process Area**

To whom it may concern:

NorthStar Contracting Group, Inc. as the Facility Operator and on behalf of the former Philadelphia Energy Solutions Refining and Marketing LLC, please find attached the Pennsylvania Department of Environmental Protection's Storage Tank Registration/Permitting Application Form(s) for the removal of the following one (1) Aboveground Storage Tank(s) located at the former Girard Point Processing Area.

AST(s) Removed from Girard Point Process Area – May (2023) - Facility ID# - (51-33624)				
Item #	PADEP Tank reg. #	AMS Tank ID #	Facility ID#	Removal Date
1.	003A	P-032	GP 273	05/25/2023

If there are any questions, I can be reached via phone or email at 440-228-1524 / ramstrong@nothstar.com

Respectfully Submitted,

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

Enclosures: Storage Tank Registration/Permitting Application Form(s)

cc:

Anne Garr (Hilco)

Dr. Kassahun Sellassie (AMS)

Thomas Barsley (AMS)

Charles Barksdale (Hilco)

Edward Wiener (AMS)



STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

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

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		61-1689574		
Individual Last Name	First Name	MI	Suffix	SSN
Garr	Anne			
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
111 S Wacker Drive		Suite 3000		
Address Last Line – City		State	ZIP+4	Country
Chicago		IL	60606	USA
Client Contact Last Name		First Name	MI	Suffix
Garr		Anne		
Client Contact Title		Phone	Ext	
Assistant Secretary		(312)283-4469		
E-mail Address				FAX
Agarr@hllcoglobal.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			
Philadelphia						
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 Name Phila Ref Girard Point

Facility ID# 51-33624

VI. STORAGE DESCRIPTION

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

Status Codes: C-Currently in Use
Type Codes: M-Manufactured

T-Temporarily Out of Use
F-Field Constructed

E-Exempt

R-Removed

P-Closed In Place

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) (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
003A	C	R	M	1941	5/25/2023	3,385,200	Other	Vacuum Gas Oil		

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 Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33624

Facility Name Phila Ref Girard Point

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility Name **Phila Ref Girard Point**

Facility ID# 51-33624

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	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"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	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"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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

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

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

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

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

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

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

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

Facility Name Phila Ref Girard Point

Facility ID# 51-33624

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>

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

Facility ID# 51-33624

Facility Name Phlla Ref Girard Point

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

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

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	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"/>	<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"/>	<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"/>	<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 Anne Garr

	Anne R. Garr	Assistant Secretary	5/31/2023
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#
Philadelphia Energy Solutions Refining and Marketing LLC		61-1689574		
Individual Last Name	First Name	MI	Suffix	SSN
Garr	Anne			
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
111 S Wacker Drive		Suite 3000		
Address Last Line – City		State	ZIP+4	Country
Chicago		IL	60606	US
Contact Title		Phone		Ext.
Assistant Secretary		(312) 283-4469		
		Philadelphia Energy Solutions Refining and Marketing LLC		

E-mail Address
agarr@hilcoglobal.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	Brian Gerner	API 12C	5431	AFMX	1631		05/25/2023

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#



STORAGE TANK REGISTRATION AMENDMENT FORM

Before completing this form, read the instructions provided for this form.

I. FACILITY AND CLIENT INFORMATION					
Facility ID# 51-33624		Facility Name Phila Ref Girard Point			
County Philadelphia		Municipality Philadelphia			
Client's Name or Registered Fictitious Name Philadelphia Energy Solutions Refining and Marketing, LLC				Client ID# 298341	
II. PURPOSE OF SUBMITTAL					
<input type="checkbox"/> Change to C status , Currently In Use Tank(s) *		<input type="checkbox"/> Change to E status , Tank(s) registered in error only			
* 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.		<input type="checkbox"/> Change Capacity			
<input checked="" type="checkbox"/> Change to T status , Temporarily Out of Use Tank(s)		<input type="checkbox"/> Change Substance			
		<input type="checkbox"/> Change Contact Information			
III. TANK INFORMATION					
Tank #	Change Date (Mo/Day/Yr)	Status	Capacity (Gallons)	Substance Name	CAS# Component %
004A	04/06/2021	T	3,385,200	Vacuum Gas Oil	
IV. CONTACT INFORMATION					
FOR: <input type="checkbox"/> Facility Owner <input type="checkbox"/> Responsible Official <input checked="" type="checkbox"/> Facility Operator <input type="checkbox"/> Property Owner					
Is person below to receive the invoice and registration certificate? <input type="checkbox"/> YES <input type="checkbox"/> NO					
Last Name: Bowman		First Name: Gary		MI: P	Suffix: Sr.
Phone #: 610-636-4574		E-mail: Gbowman@northstar.com			
Company Name: Northstar Contracting Group, Inc.					
Mailing Address: 2250 E. Adams Avenue					
City: Philadelphia		State: PA		ZIP: 19124	
V. OWNER SIGNATURE					
My signature represents to the Department that I own or represent the owner of 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 form are 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		(610) 636-4574 _____ Phone		4/22/2021 _____ Date	
<input type="checkbox"/> Facility Owner		<input type="checkbox"/> Owner's Representative		<input checked="" type="checkbox"/> Facility Operator	
				<input type="checkbox"/> Property Owner	



November 23, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

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

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

Dear PADEP:

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

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

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

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

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG



STORAGE TANK REGISTRATION AMENDMENT FORM

Before completing this form, read the instructions provided for this form.

I. FACILITY AND CLIENT INFORMATION					
Facility ID# 51-33624		Facility Name Phila Ref Girard Point			
County Philadelphia		Municipality Philadelphia			
Client's Name or Registered Fictitious Name Philadelphia Energy Solutions Refining and Marketing, LLC				Client ID# 298341	
II. PURPOSE OF SUBMITTAL					
<input type="checkbox"/> Change to C status , Currently In Use Tank(s) * <small>* 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.</small>			<input type="checkbox"/> Change to E status , Tank(s) registered in error only		
<input checked="" type="checkbox"/> Change to T status , Temporarily Out of Use Tank(s)			<input type="checkbox"/> Change Capacity		
			<input type="checkbox"/> Change Substance		
			<input type="checkbox"/> Change Contact Information		
III. TANK INFORMATION					
Tank #	Change Date (Mo/Day/Yr)	Status	Capacity (Gallons)	Substance Name	CAS# Component %
066A	11/15/2021	T	50,000	Fresh Caustic	
IV. CONTACT INFORMATION					
FOR: <input type="checkbox"/> Facility Owner <input type="checkbox"/> Responsible Official <input checked="" type="checkbox"/> Facility Operator <input type="checkbox"/> Property Owner					
Is person below to receive the invoice and registration certificate? <input type="checkbox"/> YES <input type="checkbox"/> NO					
Last Name: Bowman		First Name: Gary		MI: P	Suffix: Sr.
Phone #: (610) 636-4574		E-mail: Gbowman@northstar.com			
Company Name: NorthStar Contracting Group, Inc.					
Mailing Address: 2250 East Adams Avenue					
City: Philadelphia		State: PA	ZIP: 19124		
V. OWNER SIGNATURE					
My signature represents to the Department that I own or represent the owner of 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 form are 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		(610) 636-4574		12/16/2021	
		Phone		Date	
<input type="checkbox"/> Facility Owner		<input type="checkbox"/> Owner's Representative		<input checked="" type="checkbox"/> Facility Operator	
				<input type="checkbox"/> Property Owner	



STORAGE TANK REGISTRATION AMENDMENT FORM

Before completing this form, read the instructions provided for this form.

I. FACILITY AND CLIENT INFORMATION					
Facility ID# 51-33624		Facility Name Phila Ref Girard Point			
County Philadelphia		Municipality Philadelphia			
Client's Name or Registered Fictitious Name Philadelphia Energy Solutions Refining and Marketing, LLC				Client ID# 298341	
II. PURPOSE OF SUBMITTAL					
<input type="checkbox"/> Change to C status , Currently In Use Tank(s) *		<input type="checkbox"/> Change to E status , Tank(s) registered in error only			
* 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.		<input type="checkbox"/> Change Capacity			
		<input type="checkbox"/> Change Substance			
<input checked="" type="checkbox"/> Change to T status , Temporarily Out of Use Tank(s)		<input type="checkbox"/> Change Contact Information			
III. TANK INFORMATION					
Tank #	Change Date (Mo/Day/Yr)	Status	Capacity (Gallons)	Substance Name	CAS# Component %
066A	11/15/2021	T	50,000	Fresh Caustic	
IV. CONTACT INFORMATION					
FOR: <input type="checkbox"/> Facility Owner <input type="checkbox"/> Responsible Official <input checked="" type="checkbox"/> Facility Operator <input type="checkbox"/> Property Owner					
Is person below to receive the invoice and registration certificate? <input type="checkbox"/> YES <input type="checkbox"/> NO					
Last Name: Bowman		First Name: Gary		MI: P Suffix: Sr.	
Phone #: (610) 636-4574		E-mail: Gbowman@northstar.com			
Company Name: NorthStar Contracting Group, Inc.					
Mailing Address: 2250 East Adams Avenue					
City: Philadelphia		State: PA		ZIP: 19124	
V. OWNER SIGNATURE					
My signature represents to the Department that I own or represent the owner of 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 form are 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		(610) 636-4574 _____ Phone		12/16/2021 _____ Date	
<input type="checkbox"/> Facility Owner		<input type="checkbox"/> Owner's Representative		<input checked="" type="checkbox"/> Facility Operator	
				<input type="checkbox"/> Property Owner	



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

July 21, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401

Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33624 – Girard Process Area

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PA DEP's) Storage Tank Registration/Permitting Application Form(s) for the removal of the following Five (5) Aboveground storage tank(s) located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point Processing Area.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Proc Area	51-33624	011A	GP-1047	N/A	07/06/2022
Girard Point Proc Area	51-33624	047A	GP-1101	P-137 (GP)	07/07/2022
Girard point Proc Area	51-33624	046A	GP-767	P-135 (GP)	07/08/2022
Girard point Proc Area	51-33624	044A	GP-894	N/A	07/11/2022
Girard point Proc Area	51-33624	033A	GP-1088	N/A	07/08/2022

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

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

Enclosures: Storage Tank Registration/Permitting Application Form

cc:

Gary Bowman (NorthStar)
Dr. Kassahun Sellassie (AMS)
Thomas Barsley (AMS)
Charles Barksdale (Hilco)
Edward Wiener (AMS)
Mike Leonardo (Hilco)

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

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

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <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	
		<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#

Facility Name

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/Da/Yr)	Change of Status Date (Mo/Da/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance Name (If Other Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
011A	T	R	F	1/1/1989	07/06/2022	158,340		Caustic, Fresh		
047A	T	R	F	1/1/1957	07/07/2022	84,000		Recovered Oil		
046A	T	R	F	1/1/1960	07/08/2022	42,000		Recovered Oil		
044A	T	R	F	1/1/1972	07/11/2022	8,022		Caustic, Fresh		
033A	T	R	F	1/1/1953	07/08/2022	26,500		Caustic Fresh		

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

Facility ID#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility ID#

Facility Name

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

Facility ID# Facility Name

Aboveground Piping Construction & Corrosion Protection (3)	Tank #					
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 #					
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 #					
S. Permanently installed and liquid tight (single-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Permanently installed and liquid tight (double-walled)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Overfill Prevention (7)		Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Fill in less than 25 gallons (exempt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. None (AST only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Containment (16) ASTs only		Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Secondary Containment (17) Single Wall ASTs only		Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Stage I Vapor Recovery (19) USTs and ASTs when applicable		Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	N. None -- Explain: _____	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

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

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	011A	47A	46A	44A		
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. OWNER CERTIFICATION

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

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

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

Type or Print Owner Name : Gary Bowman

Owner Signature

President

Date

07/13/2022

Information & Invoices should be sent to:

Tank Owner Contact

Site Contact

Facility Operator

Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name

NorthStar Contracting Group, Inc.

Individual Last Name

Bowman

Additional Individual Last Name

Gary

Mailing Address Line 1

2250 East Adams Ave.

Mailing Address Line 2

Philadelphia

Contact Title

President

E-mail Address

gbowman@northstar.com

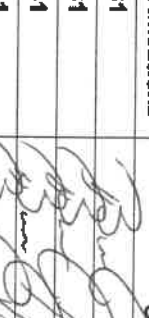
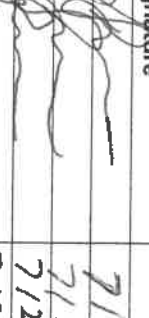
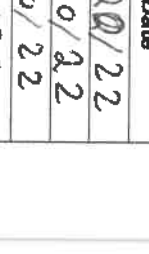
Client to Site (Facility) Relationship

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 INSTALLERS) / REMOVERS)

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

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
011A	Brian Gerner	API 650	5341	AFMX	1631		7/20/22
47A	Brian Gerner	API 650	5341	AFMX	1631		7/20/22
46A	Brian Gerner	API 12C	5341	AFMX	1631		7/20/22
44A	Brian Gerner	API 12C	5341	AFMX	1631		7/20/22
033A	Brian Gerner	API 12C	5431	AFMX	1631		7/20/22

XI. INSPECTOR CERTIFICATION

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

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

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

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

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

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

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



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

September 9, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401

Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

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

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Forms for the removal of the following two (2) Aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point Processing Area.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	O16A	GP-227	P-147 (GP)	8/26/2022
Girard Point Refinery	51-33624	022A	GP-272	P-012 (GP)	9/9/2022

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

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

Enclosures: Storage Tank Registration/Permitting Application Form

cc:

- Gary Bowman (NorthStar)
- Dr. Kassahun Sellassie (AMS)
- Thomas Barsley (AMS)
- Charles Barksdale (Hilco)
- Edward Wiener (AMS)
- Mike Leopnardo (Hilco)

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

51-33624 Facility ID # Phila Ref Girard Point Process Area 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 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# 51-33624

Facility Name Girard Point Process Area

VI. STORAGE DESCRIPTION

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

Status Codes: C-Currently in Use
Type Codes: M-Manufactured

E-Exempt
T-Temporarily Out of Use
F-Field Constructed

R-Removed

P-Closed In Place

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
016A	C	R	F	1954	08-26-2022	3,385,200	Main Frac Bottoms			
022A	C	R	F	1941	09-09-2022	3,045,000	Recovered Oil			

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# _____ Facility Name _____

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility Name

Facility ID#

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Facility Name							
	Tank #	Tank #	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"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Facility Name							
	Tank #	Tank #	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"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# _____ Facility Name _____

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

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

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

Facility ID# _____ Facility Name _____

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

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

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

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

Facility ID# _____
Facility Name _____

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: _____	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>

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

Facility ID# 51-33624

Facility Name Girard Point Process Area

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 #
	016A	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 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 Title	09-09-2022 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		
2250 East Adams Ave.				
Address Last Line - City		State	ZIP+4	Country
Philadelphia		PA	19124	USA
Contact Title		Phone		Ext.
President		610-636-4574		
E-mail Address				
gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

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

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

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

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
016A	Brian Gerner	API 12C	5341	AFMX	1631		9/9/2022
022A	Brian Gerner	API 12C	5341	AFMX	1631		9/9/2022

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#



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

April 27, 2022

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

**Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
 Notification of Removal of Previously Closed-In-Place Tanks
 PADEP Facility ID #51-33624 – Girard Point Refinery**

To whom it may concern:

We are notifying the Pennsylvania Department of Environmental Protection (PADEP) of the removal of two (2) previously closed-in-place tank from the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point site. **Note: the removal of this tank does not require a Storage Tank Registration/Permitting Application Form to be submitted at this time as it was previously closed-in-place.**

This notification is solely intended to provide the PADEP with a final administrative record of the lifespan of this tank.

Facility Name	Tanks Removed that were Previously Closed-In-Place					
	PADEP Facility ID #	PADEP Former Reg. #'s	Owner Tank ID #	AMS Tank ID #	Closed-In-Place Date	Removal Date
Girard Point Refinery	51-33624	022A	GP-271	P-168	10/24/2013	04/18/2022
Girard Point Refinery	51-33624	024A	GP-280	P-035	11/13/2019	04/12/2022

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

Respectfully Submitted,

Robert Armstrong
 Sr. Project Manager
 NorthStar Contracting Group, Inc.
 Enclosures: NA

cc:

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

Edward Wiener (AMS)
 Mike Leonardo (Hilco)



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

May 17, 2022

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

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

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Form for the removal of the following four (4) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point site.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	027A	GP-285	P-015	05/02/2022
Girard Point Refinery	51-33624	028A	GP-286	P-016	05/05/2022
Girard Point Refinery	51-33624	026A	GP-282	P-036	05/13/2022
Girard Point Refinery	51-33624	004A	GP-284	P-037	05/10/2022

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

Respectfully Submitted,

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

cc:

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

Edward Wiener (AMS)
Mike Leonardo (Hilco)



STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

	DEP USE ONLY
51-33624	Client ID#
Facility ID #	Site ID#
Phila Ref Girard Point	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 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#

Facility Name

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
027A	T	R	F	1948	05/02/2022	3,045,000		Light naptha		
028A	T	R	F	1948	05/05/2022	3,045,000		Heavy naptha		
026A	T	R	F	1947	05/13/2022	3,385,200		Vacuum gas oil		
004A	T	R	F	1948	05/10/2022	3,385,200		Vacuum gas oil		

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#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility ID#

Facility Name

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

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

Facility ID#

Facility Name

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

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

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

Facility ID#

Facility Name

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

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

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

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

Facility ID#

Facility Name

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

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

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

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

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

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

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	027A	028A	026A	004A		
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


IX. OWNER CERTIFICATION

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

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

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

Type or Print Owner Name : Gary Bowman

	President	05/17/2022
Owner Signature	Title	Date

Information & Invoices should be sent to:

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

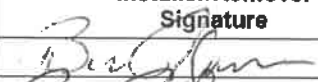


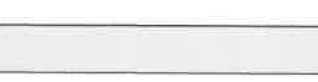
Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250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

X. INSTALLER / REMOVER CERTIFICATION

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

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

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

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
027A	Brian Gerner	API 12C	5341	AFMX	1631		5/17/22
028A	Brian Gerner	API 12C	5341	AFMX	1631		5/17/22
026A	Brian Gerner	API 12C	5341	AFMX	1631		5/17/22
004A	Brian Gerner	API 12C	5341	AFMX	1631		5/17/22

XI. INSPECTOR CERTIFICATION

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

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

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

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

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

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

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



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

March 30, 2022

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

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

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/Permitting Application Form for the removal of the following three (3) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point site.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	50A	GP-1038	P-157	03/09/2022
Girard Point Refinery	51-33624	049A	GP-1039	P-158	03/09/2022
Girard Point Refinery	51-33624	021A	GP-270	P-134	03/09/2022

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

Respectfully Submitted,

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

Enclosures: Storage Tank Registration/Permitting Application Form

cc:

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

Edward Wiener (AMS)
Mike Leonardo (Hilco)



STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

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

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- | | |
|---|--|
| <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
		<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

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#

Facility Name

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 or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
50A	T	R	F	1972	03-09-2022	126,000	Alky Slurry			
049A	T	R	F	1989	03-09-2022	126,000	#6 Fuel Oil			
021A	T	R	F	1940	03-09-2022	3,078,012	Recovered Oil			

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 Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

Tank Construction & Corrosion Protection (1)	Tank Manufacturer:					
	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
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#

Facility Name

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	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"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	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"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# _____ Facility Name _____

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

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

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

Facility ID#

Facility Name

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

	Emergency Containment (16) ASTs only						
	Tank #	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"/>	<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"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<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 #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<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 #	Tank #
A. Coaxial	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only		Tank #	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only		Tank #	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Line Leak Detector Shuts Off Pump (23) USTs only		Tank #	Tank #	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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tank Supplier Emergency Generator (25)		Tank #	Tank #	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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

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

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	50A	049A	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 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

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

Information & Invoices should be sent to:

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




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

X. INSTALLER / REMOVER CERTIFICATION

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

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

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 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
50A	Brian Gerner	API 650	5341	AFMX	1631		5/30/22
049A	Brian Gerner	API 650	5341	AFMX	1631		5/30/22
021A	Brian Gerner	API 12C	6341	AFMX	1631		5/30/22

XI. INSPECTOR CERTIFICATION

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

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

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

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

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

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

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



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

April 27, 2022

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

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

To whom it may concern:

Please find NorthStar Contracting Group, Inc.’s submittal of the Pennsylvania Department of Environmental Protection’s (PADEP’s) Storage Tank Registration/Permitting Application Form for the removal of the following four (4) aboveground storage tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point site.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	59A	GP-217	P-005	04/05/2022
Girard Point Refinery	51-33624	001A	GP-219	P-144	04/08/2022
Girard Point Refinery	51-33624	023A	GP-276	P-034	04/06/2022
Girard Point Refinery	51-33624	025A	GP-281	P-150	04/19/2022

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

Respectfully Submitted,

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

cc:

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

Edward Wiener (AMS)
Mike Leonardo (Hilco)



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.

	DEP USE ONLY
51-33624	Client ID#
Facility ID #	Site ID#
Phila Ref Girard Point	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 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#

Facility Name

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
59A	T	R	F	1955	04/05/2022	1359162		Benzene		
001A	C	R	F	1925	04/08/2022	1665720		Light Cycle Oil		
023A	T	R	F	1945	04/06/2022	3045000		Light Naptha		
025A	T	R	F	1947	04/19/2022	3385200		Vacuum Gas Oil		

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#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility ID#

Facility Name

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

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

Facility ID#

Facility Name

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

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

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

Facility ID#

Facility Name

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

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

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

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

Facility ID#

Facility Name

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

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

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

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

Facility ID#

Facility Name

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

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

<i>Items 2 & 3 below apply to large ASTs and all USTs</i>	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	59A	001A	023A	025A		
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

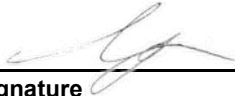
IX. OWNER CERTIFICATION

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

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

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

Type or Print Owner Name : Gary Bowman

	President	04/27/2022
Owner Signature	Title	Date

Information & Invoices should be sent to:

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




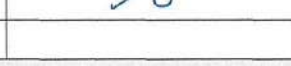
Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
NorthStar Contracting Group, Inc.				
Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr.	
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
2250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

X. INSTALLER / REMOVER CERTIFICATION

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

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

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

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
59A	Brian Gerner	API 12C	5341	AFMX	1631		4/27/2022
001A	Brian Gerner	API 12C	5341	AFMX	1631		4/27/2022
023A	Brian Gerner	API 12C	5341	AFMX	1631		4/27/2022
025A	Brian Gerner	API 12C	5341	AFMX	1631		4/27/2022

XI. INSPECTOR CERTIFICATION

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

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

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

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

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

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

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



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

June 14, 2022

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401

Via email: RA-serotanks@pa.gov, ra-tanks@pa.gov

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

To whom it may concern:

Please find NorthStar Contracting Group, Inc.'s submittal of the Pennsylvania Department of Environmental Protection's (PA DEP's) Storage Tank Registration/Permitting Application Form(s) for the removal of the following one (1) Aboveground storage tank(s) located at the Philadelphia Energy Solutions Refining and Marketing, LLC Girard Point Processing Area.

Removed					
Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Girard Point Refinery	51-33624	066A	GP-973	N/A	05/31/2022

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

Respectfully Submitted,

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

Enclosures: Storage Tank Registration/Permitting Application Form

cc:

- Gary Bowman (NorthStar)
- Dr. Kassahun Sellassie (AMS)
- Thomas Barsley (AMS)
- Charles Barksdale (Hilco)
- Edward Wiener (AMS)
- Mike Leonardo (Hilco)

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

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

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

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

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

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

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

CHANGE OF OWNERSHIP

- Tanks Changed Ownership and Remain at Same Facility*

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

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

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

III. SITE INFORMATION

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

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

IIIa. PROPERTY OWNER INFORMATION

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

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

IV. FACILITY INFORMATION

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

FACILITY OPERATOR INFORMATION

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

V. CHANGE OF OWNERSHIP INFORMATION

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

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

OWNERSHIP CHANGE FROM (previous owner information)

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

DATE OF SALE/TRANSFER

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

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

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

Type or Print Previous Owner Name _____

Previous Owner Signature _____ Title _____ Date _____

Facility ID# 51-33624

Facility Name Phila Ref Girard Point Proc Area

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
066A	T	R	F	2006	5/31/2022	53,000		Fresh Caustic		

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#

Facility Name

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

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

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

Facility ID# _____ Facility Name _____

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Facility Name							
	Tank #	Tank #	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"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Facility Name							
	Tank #	Tank #	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"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Cathodically Protected Metallic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Fiberglass	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Facility ID# _____ Facility Name _____

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

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

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

Facility ID#

Facility Name

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

Emergency Containment (16) ASTs only	Tank #	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"/>	<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"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<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 #	Tank #
N. No - Explain: _____	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
V. Underground vault	<input type="checkbox"/>	<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 #	Tank #
A. Coaxial	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>

Facility ID#

Facility Name

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>

Under-dispenser Containment Present (22) USTs only	Tank #	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"/>	<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"/>	<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"/>	<input type="checkbox"/>

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

Facility ID# 51-33624

Facility Name Phila Ref Girard Point Proc Area

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 #
	066A					
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	6/6/2021
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 Ave.				
Address Last Line -- City		State	ZIP+4	Country
Philadelphia		PA	19124	USA
Contact Title		Phone		Ext.
President		610-636-4574		
E-mail Address				
gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

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

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

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

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
066A	Brian Gerner	API 650	5341	AFMX	1631		6/6/2022

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#

Appendix C

Tank Closure Report Forms





ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

51-33624
Facility I.D.

Former Philadelphia Refinery Point Breeze - Tank Group 6
Facility Name

Philadelphia Philadelphia
Municipality County

June 14, 2023
Date Prepared

Kevin L. Long
Name of Person Submitting Report
(Please Print)

Terraphase Engineering Inc.
Company Name
(If Applicable)

Principal Consultant
Title

Closure Method (Check all that apply):

- AST Removal
- AST Closure-In-Place
- AST Change-In-Service

Site Assessment Results (Check all that apply):

- No Obvious Contamination - Sample Results Meet Standards/Levels
- No Obvious Contamination - Sample Results Do Not Meet Standards/Levels
- Obvious, Localized Contamination - Sample Results Meet Standards/Levels
- Obvious, Localized Contamination - Sample Results Do Not Meet Standards/Levels
- Obvious, Extensive Contamination

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

DATE RECEIVED: _____

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Owners who are permanently closing aboveground storage tank systems may use this form to demonstrate that a storage tank system closure was performed in accordance with technical guidance document 263-4200-001 "Closure Requirements for Aboveground Storage Tank Systems". PLEASE PRINT OR TYPE. COMPLETE ALL QUESTIONS.

SECTION I. Owner/Facility/Tank/Waste Management and Disposal Information

- | | |
|--|--|
| 1. Facility ID Number <u>51-33624</u>
<u>Breeze - Tank Group 6</u> | 2. Facility Name <u>Former Philadelphia Refinery Point</u> |
| 3. Facility County <u>Philadelphia</u> | 4. Facility Municipality <u>Philadelphia</u> |
| 5. Facility Address <u>3144 West Passyunk Avenue</u> | |
| 6. Facility Contact Person <u>Anne R. Garr</u> | 7. Facility Telephone Number <u>(312) 796-6564</u> |
| 8. Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u> | |
| 9. Owner Mailing Address <u>111 S. Wacker Dr., Ste 3000</u> | |
| 10. Description of Aboveground Storage Tank Systems (Complete for each tank system closed) | |

DATE OF TANK SYSTEM CLOSURE (Month/Day/Year)		- -	- -	- -	- -
Description of Aboveground Storage Tank System (Complete for each tank system undergoing closure)					
DEP Tank ID Number	See attached Table				
Total Capacity (Gallons)					
Substance(s) Stored Throughout Operating Life of Tank System (Check All That Apply)	a. Petroleum Unleaded Gasoline Leaded Gasoline Aviation Gasoline Pure Ethanol Blended Ethanol _____% Kerosene Jet Fuel Diesel Fuel Biodiesel _____% Fuel Oil No. 1 Fuel Oil No. 2 Fuel Oil No. 4 Fuel Oil No. 5 Fuel Oil No. 6 New Motor Oil Used Motor Oil Nonpetroleum Oil, Specify Other, Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		NOTE: If Hazardous Substance Block is Checked, Attach Safety Data Sheets (SDS)	b. Hazardous Substance Name of Principal CERCLA Substance AND Chemical Abstract Service (CAS) No.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
	c. Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CLOSURE METHOD(s):		DEP Tank ID Number:				
Partial Storage Tank System Closure			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tank <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dispenser <input type="checkbox"/> N/A	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	a. Removal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-in-Service		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Describe Closure Activities:

The tanks and associated piping were evacuated of any sale-able product, which was consolidated / bulked and eventually sold. All materials were either transferred to a slop oil tank through existing piping at the facility or via vacuum truck. When feasible the lines were drained back to the tank, and any product removed using a vacuum truck and stored with the other bulked products for future sale. The associated piping was then cleaned using copious amounts of water, high pressure water and /or purged with air or an inert gas such as nitrogen. Some heavy oil lines were flushed using cutter stock before using water. When required, a thermal Oxidizer was utilized to reduce the LEL inside the tank prior to opening and performing Confined Space Entry for cleaning. When necessary or prudent tanks and/or piping were also purged by pulling the internal atmosphere through activated carbon. Once the piping was cleaned, verification was conducted via a physical walk-down of the system, and painting valves and piping green as each was confirmed to be open and empty. The piping and utilities were then air gapped by the mechanical contractor (Nooter). Air gapping was followed by the simultaneous removal of the piping system and the cleaning the interior of the tank. Interior cleaning was conducted by one of three subcontracted industrial services companies (ACV Enviro, MPW, EISCO) and included when necessary the removal of floating roof seals (EFR/IFR). Pontoons were also inspected prior to demolition and if found to contain free product, they were evacuated and the product consolidated with the other like products stored for future sale. All cleaning water and rinsates were collected via vacuum truck and water was decanted at the wash pad leading to the on-site WWTPs. The remaining sludges and tank bottoms were stabilized with water absorbing polymers and or organic products such as kiln dried sawdust to ensure no free liquids in transit. The material was then loaded into intermodal containers (maximum 24 tons per container and 6 containers per rail car), placed on rail cars. Bills of lading were generated and sent to the railroad to schedule for pickup. The material was managed under 40 CFR 261.4(a)(24) verified recycling exemption and transported by rail to CWM in Sulphur, LA. Upon completion of the cleaning process the tanks and any remaining piping were dismantled, loaded into scrap recycling trucks and/or containers weighed at the facility scale and transported to a local scrap recycling company.

Yes N/A

11. Briefly describe the storage tank facility and the nature of the operations which were conducted at the facility (both historical and present) **including use of the storage tank systems:**

Tank Group 06 was located in the west-central portion of the Former Philadelphia Refinery Complex.

The tanks in the group held a variety of materials associated with the petroleum refining process.

- 12. A site location and sampling map of the site, drawn to scale, is attached. See page 11 of 11.
- 13. Original, color photographs of the closure process involving any excavation are attached (i.e., inside of excavation/piping runs, pit water, containment structure and foundation showing condition).
- 14. An amended "Storage Tanks Registration/Permitting Application" Form was submitted to the DEP, Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762.

Date: 03 / 30 / 2022

Section I

15. If a release was confirmed, the appropriate regional office of DEP was notified by the owner or operator.

Date: 01 / 04 / 2023 Office: Southeast

Yes N/A

16. If tanks were cleaned on-site:
- a. Briefly describe the disposition of usable product: Usable product was drained from the tanks prior to cleaning and transferred to other on-site storage tanks. The useable product was consolidated and sold. Any residual product was discharged to the on-site process sewer and wastewater treatment system.
 - b. Briefly describe the disposal of unusable product, sludges, sediments, and wastewater generated during cleaning. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):
All tank bottoms to include sediments, sludges containing recoverable oil were managed in accordance with 40 CFR261.4(a)24. When shipped by rail to CWM in Sulphur, LA, the material was solidified using organic agents such as kilndried sawdust to ensure no free liquid during transnit, then placed into Inter-modal containers, loaded onto railcars, properly placarded and BOL's were generated and provided to the railroad. When transported to SAREX in West Deptford, NJ, the material was transporterd via vacuum truck and managed under the same exemption 40 CFR 261.4(a)(24). Any wastewater generated from cleaning was treated through the onsite waste water treatment plants (NPDES Permit #s 0012629 (Point Breeze) and 0011533 (Girard Point). Generator ID # PAD 0497910-98
 - c. If tank contents were determined/deemed to be hazardous waste, provide:
 - (1) Generator ID Number: PAD049791098
 - (2) Licensed Hazardous Waste Transporter Name and ID Number: Dana Transport, HW ID #40106; Chemical Waste Management - LA 0000777201, BNSF Railway Company - LA 000147272
17. If tanks were removed from the site for cleaning:
- a. Provide the name and permit number of the processing, treatment, storage or disposal facility performing the tank cleaning:
 - b. If tank contents were determined/deemed to be hazardous waste, provide:
 - (1) Generator ID Number: _____
 - (2) Licensed Hazardous Waste Transporter Name and ID Number: _____
18. Briefly describe the disposition of tanks/piping (Attach documentation of proper disposal):
All tanks and associated piping were cleaned, demolished and recycled for scrap value. Pipe and tank scrap was not segregated for transportation to the scrap facility; therefore, a specific quantity of piping or tank scrap was not detailed in disposal documentation.

Section I

- 19. If contaminated soil is excavated:
 - a. Briefly describe the disposition and amount _____ (tons) of contaminated soil. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):

- b. If contaminated soil is determined/deemed to be hazardous waste, provide:
 - (1) Generator ID Number: _____
 - (2) Licensed Hazardous Waste Transporter Name and ID Number: _____

Yes N/A

- 20. Briefly describe the disposition of and amount _____ (tons) of uncontaminated soil and debris (attach analyses):

- 21. If the tanks were "Closed-in-Place" provide information below:
 - a. Briefly describe the tank cleaning process: _____

- b. If subcontracted, name and address of company that performed the tank cleaning:

- c. How were tanks marked/labeled with permanent closure date: _____

I, Philadelphia Energy Solutions Refining and Marketing LLC, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the owner of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.



Anne R. Garr, Assistant Secretary of
Philadelphia Energy Solutions Refining and
Marketing LLC

Signature of Tank Owner

6 /29 /2023

Date

Philadelphia Energy Solutions Refining and Marketing LLC

Company Name
(If applicable)

Assistant Secretary

Title

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION II. Tank Handling Information

Facility ID Number 51 - 33624

DEP Tank ID Number(s) 049A, 050A, 011A, 066A, 028A, 023A, 027A, 021A, 022A, 047A, 003A, 004A, 025A, 026A

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:
Removed tank and piping debris was segregated and loaded into roll-off containers during demolition. Soil excavation was not completed at the time of AST removal.

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:
All the pertinent tank and piping system locations requiring sampling for closure purposes were documented, cleaned, demolished, and recycled for scrap value. In some cases, air gapping and removal of tank system piping prior to the demo of the tank was conducted. No problems or issues concerning the condition of the piping systems were reported.

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:
None reported.

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:
Vapors were monitored via a LEL meter. The tanks and associated piping were evacuated of any sale-able product and then cleaned using copious amounts of water, high pressure water and /or purged with air or an inert gas such as nitrogen. Some heavy oil lines were flushed using cutter stock before using water. When required, a thermal oxidizer was utilized to reduce the LEL inside the tank prior to opening and performing Confined Space Entry for cleaning. When necessary or prudent tanks and/or piping were also purged by pulling the internal atmosphere through activated carbon.

5. If tanks were cleaned on-site:
a. Briefly describe the tank cleaning process: The subcontracted companies used to clean tanks were ACV ENVIRO, EISCO, and MPW. Tanks were drained, cut open, rinsed and scrubbed clean of any residuals before demolition. See additional detail on page 3.

b. If subcontracted, name and address of company that performed the tank cleaning:
NorthStar Contracting Group, Inc., 2250 East Adams Avenue, Philadelphia, PA 19124
ACV Enviro, 2527 Market Street, Aston PA 19014
EISCO, 288 Oak Grove Road, Swedesboro, NJ 08085
MPW, 9711 Lancaster Road SE, Hebron, OH 43025

6. If tanks were "Closed-in-Place", briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry: _____

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, Brian Garner, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the certified remover who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.



Signature of Certified Remover

5341

Remover Certification Number

6 128, 2023

Date

1631

Company Certification Number

AST Construction

Company Name

5 Canal Drive

Street

Egg Harbor Twp NJ 08234

City/Town, State, Zip

609 277 7101

Phone

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 021A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

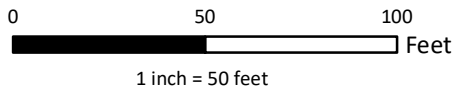
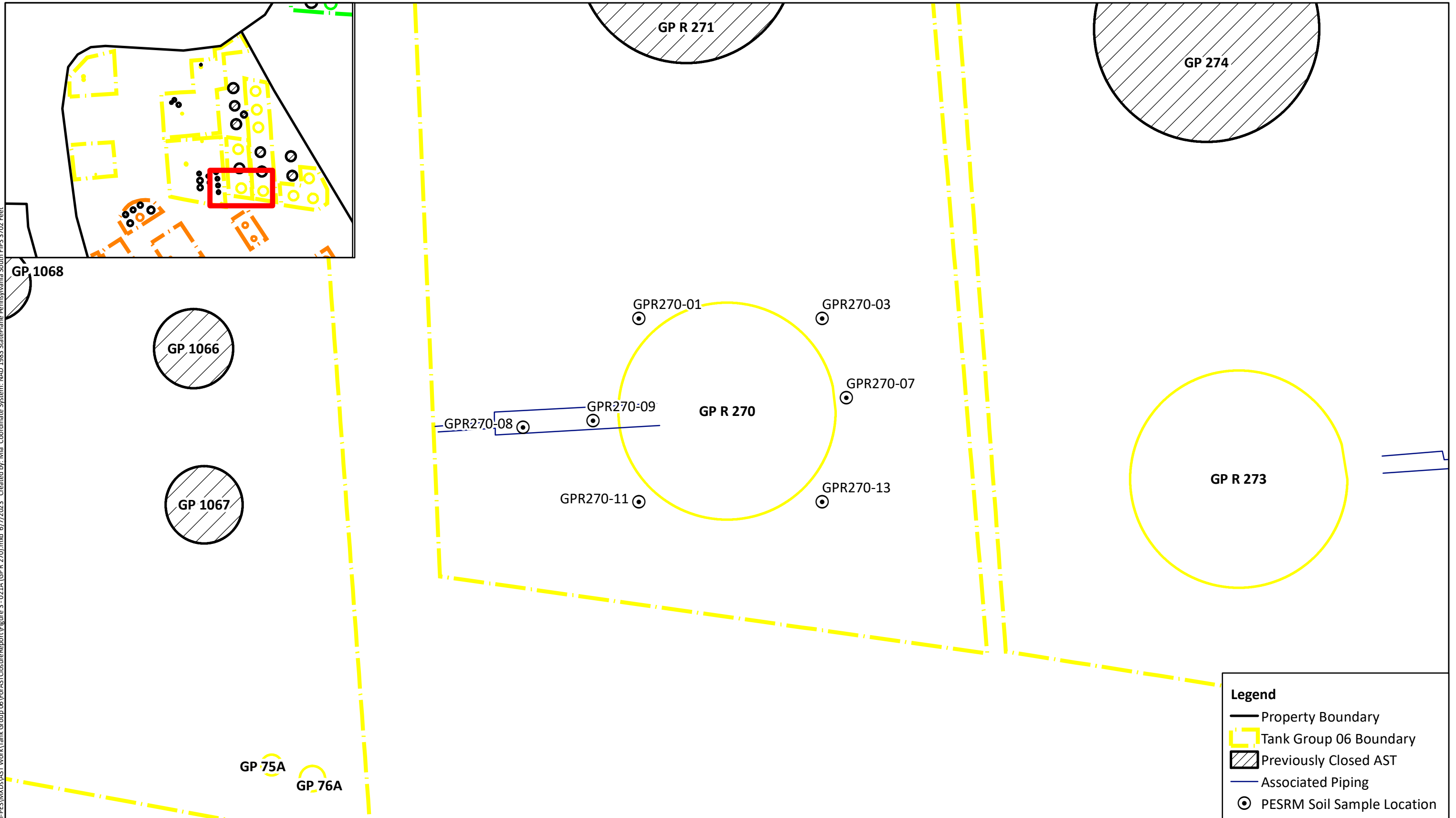
Township/Borough: See attached Figure


Table 3 - 021A (GP R 270)
 Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR270-09	GPR270-09-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.6	0.18	12/8/2022	12/11/2022
GPR270-09	GPR270-09-SS01	4.5	5	Chrysene	SW8270E	Soil	4.9	0.13	12/8/2022	12/11/2022
GPR270-09	GPR270-09-SS01	4.5	5	Cumene	SW8260D	Soil	0.00073	0.0015	12/8/2022	12/12/2022
GPR270-09	GPR270-09-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	0.00026	0.0015	12/8/2022	12/12/2022
GPR270-09	GPR270-09-SS01	4.5	5	Fluorene	SW8270E	Soil	5	0.22	12/8/2022	12/11/2022
GPR270-09	GPR270-09-SS01	4.5	5	Lead	SW6010D	Soil	400	2.62	12/8/2022	12/10/2022
GPR270-09	GPR270-09-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	0.0014	0.0029	12/8/2022	12/12/2022
GPR270-09	GPR270-09-SS01	4.5	5	Naphthalene	SW8270E	Soil	7.7	0.22	12/8/2022	12/11/2022
GPR270-09	GPR270-09-SS01	4.5	5	Phenanthrene	SW8270E	Soil	13	0.67	12/8/2022	12/15/2022
GPR270-09	GPR270-09-SS01	4.5	5	Pyrene	SW8270E	Soil	11	0.67	12/8/2022	12/15/2022
GPR270-09	GPR270-09-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0015	12/8/2022	12/12/2022
GPR270-09	GPR270-09-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.00225	0.0029	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	0.00098	0.0035	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00087	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0017	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	0.00049	0.0035	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Anthracene	SW8270E	Soil	2.9	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.00087	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	2.1	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	2.8	0.21	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	2.9	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	3.5	0.21	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Chrysene	SW8270E	Soil	2.4	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Cumene	SW8260D	Soil	0.0033	0.0017	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	0.0006	0.0017	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Fluorene	SW8270E	Soil	1.2	0.26	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Lead	SW6010D	Soil	589	3.04	12/8/2022	12/10/2022
GPR270-11	GPR270-11-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0035	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Naphthalene	SW8270E	Soil	20	1.3	12/8/2022	12/15/2022
GPR270-11	GPR270-11-SS01	4.5	5	Phenanthrene	SW8270E	Soil	5.7	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Pyrene	SW8270E	Soil	2.7	0.16	12/8/2022	12/11/2022
GPR270-11	GPR270-11-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0017	12/8/2022	12/12/2022
GPR270-11	GPR270-11-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.00329	0.0035	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.0028	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00069	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0014	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0028	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Anthracene	SW8270E	Soil	0.091	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.00069	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	0.32	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	0.32	0.16	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	0.42	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	0.2	0.16	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Chrysene	SW8270E	Soil	0.37	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0014	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.0014	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Fluorene	SW8270E	Soil	0.046	0.2	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Lead	SW6010D	Soil	215	2.36	12/8/2022	12/10/2022
GPR270-13	GPR270-13-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0028	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Naphthalene	SW8270E	Soil	0.03	0.2	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Phenanthrene	SW8270E	Soil	0.31	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Pyrene	SW8270E	Soil	0.42	0.12	12/8/2022	12/11/2022
GPR270-13	GPR270-13-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0014	12/8/2022	12/12/2022
GPR270-13	GPR270-13-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0028	12/8/2022	12/12/2022

Notes:
 ND -- Not Detected
 SS -- Soil Sample

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXDs\AST_Work\Tank_Group_06\FerASTClosureReport\Figure 3 - 021A (GP R 270).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 021A (GP R 270) Figure 3
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



Photograph 1:
View of Tank 021A
(GP R 270) during
demolition.



Photograph 2:
View of Tank 021A
(GP R 270) during
demolition.



Photograph 3:

View of piping removal at Tank 021A (GP R 270) during demolition.



PES Project Load Ticket

5120103

Load Ticket: 18732

Date: 03-04-22

Sold to: EMR Scrap
Location: Tank 270
Carrier: EMR

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 69780 lbs

Tare Weight: 41500 lbs

Net Weight: 28280 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20034741
Date: 03/04/2022 7:56 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 130659.261
Loads: 8515

DT357849-129 - EMR TRUCK 357849 W/TRAILER 129
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	14.14 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	69780.00	41500.00	28280.00

18732

03-04-2022 07:57:44

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 022A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

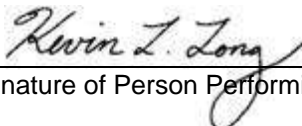
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See summary in figure section below							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

Section III

P - Samples placed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: At multiple AST locations, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil and standing water which prevented soil sampling was present in some cases. Because of these physical obstructions, Site Characterization sampling results generated by Evergreen in AOI 7 were used to determine the sources of contamination and to determine the extent of migration of regulated substances in soil and groundwater. As such, figures and tables presenting soil data generated by PESRM for these ASTs (049A, 050A, 066A, 022A, and 003A) have not been attached as the soil has not yet been sampled by PESRM.



Demo at GP 272

Photograph 1:

View of Tank 022A (GP R 272) during demolition.



Demo at GP272

Photograph 2:

View of Tank 022A (GP R 272) during demolition.



Photograph 3:

View of Tank 022A (GP R 272) during demolition.



Demo at GP272

Photograph 4:

View of Tank 022A (GP R 272) during demolition.



Photograph 5:

View of the tank material loadout from Tank 022A (GP R 272) after demolition.



PES Project Load Ticket

5120103

Load Ticket: 22975

Date: 09-09-22

Scrap

Sold to: Allegheny
Location: Tank 272
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Scale Ticket #: _____

Gross Weight: 57980 lbs

Tare Weight: 42400 lbs

Net Weight: 15580 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20038482
Date: 09/09/2022 6:53 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 183357.876
Loads: 12053

DT327-1109 - ALLEGHENY TRUCK 327-1109
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

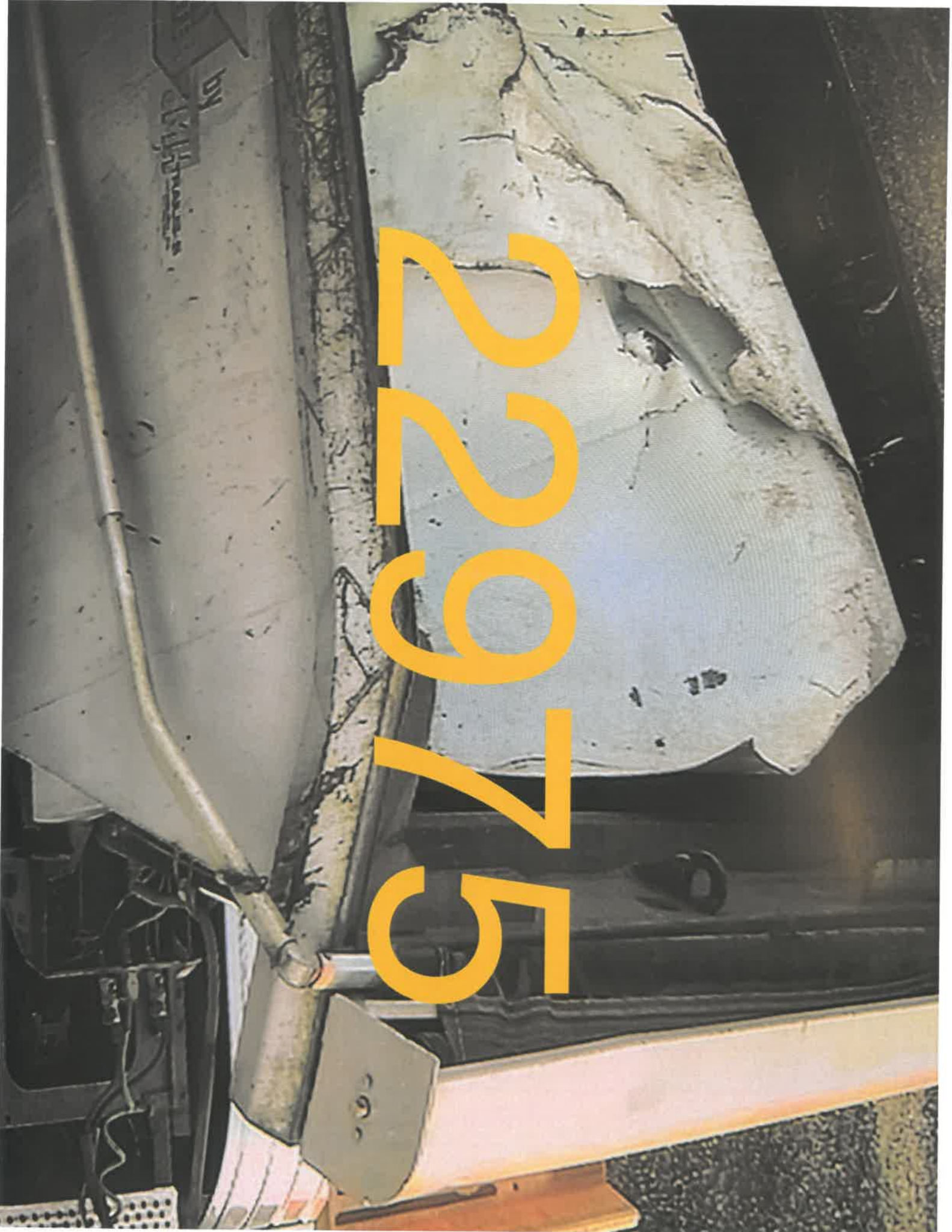
Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	7.79 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	57980.00	42400.00	15580.00

22975

104
104



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 003A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

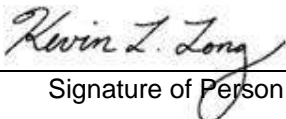
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See summary in figure section below							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

Section III

P - Samples placed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: At multiple AST locations, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil and standing water which prevented soil sampling was present in some cases. Because of these physical obstructions, Site Characterization sampling results generated by Evergreen in AOI 7 were used to determine the sources of contamination and to determine the extent of migration of regulated substances in soil and groundwater. As such, figures and tables presenting soil data generated by PESRM for these ASTs (049A, 050A, 066A, 022A, and 003A) have not been attached as the soil has not yet been sampled by PESRM.



Photograph 1:
View of Tank 003A (GP R 273) during demolition.



Photograph 2:
View of Tank 003A (GP R 273) during demolition.



PES Project Load Ticket

5120103

Load Ticket: 25504

Date: 05-24-23

Sold to: Allegheny Scrap
Location: TANK 273
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 79880 lbs

Tare Weight: 42400 lbs

Net Weight: 37480 lbs

NorthStar Rep. Signature: [Signature]

Received By: Mul Fin

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20040246
Date: 05/24/2023 10:58 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 207990.216
Loads: 13803

DT327-1109 - ALLEGHENY TRUCK 327-1109
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

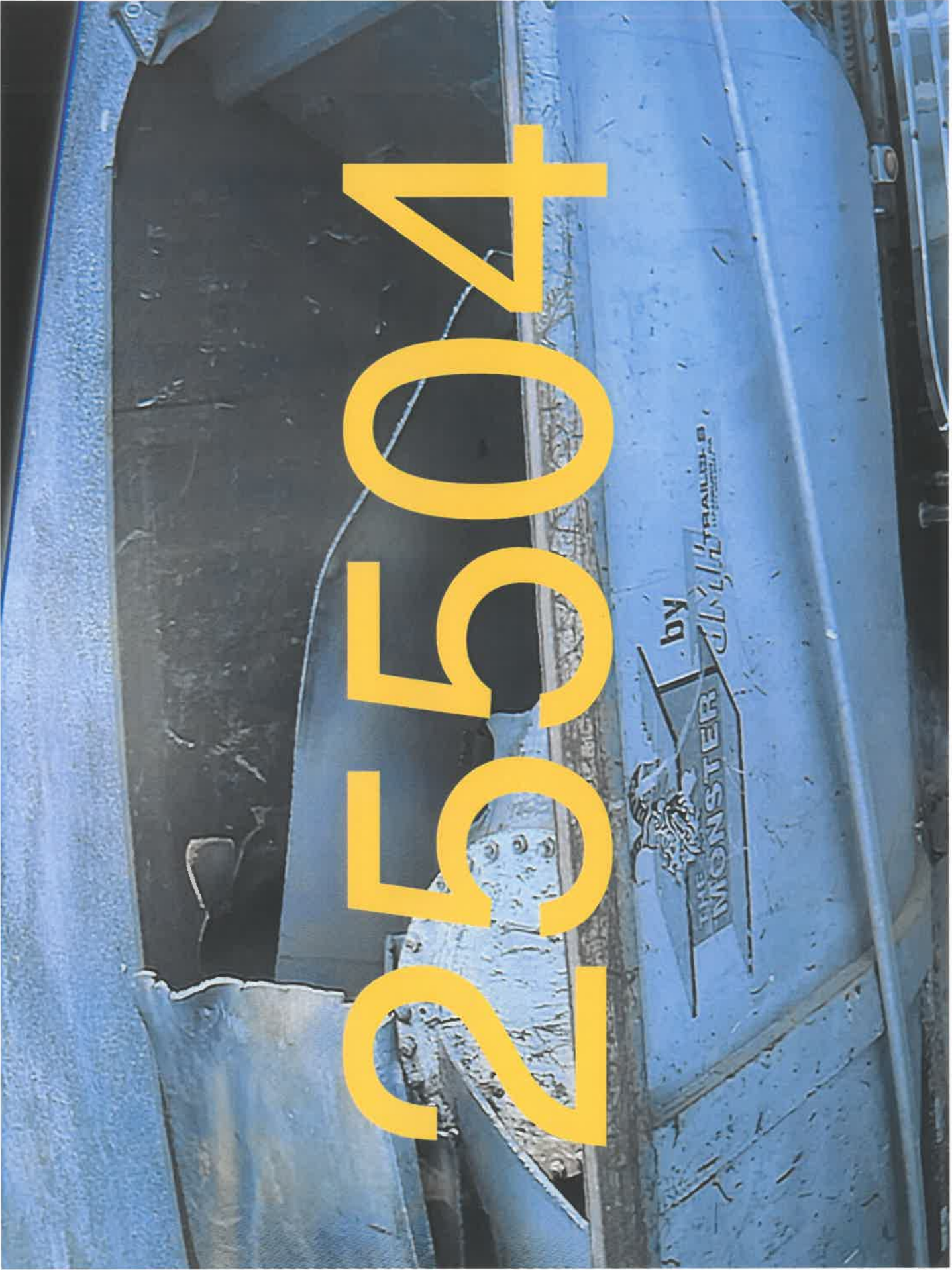
Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	18.74 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	79880.00	42400.00	37480.00

25504

by THE MONSTER *ILLUSTRATED*



Main & Yard
2200 E. Adams Ave
Philadelphia, PA 19124
(215) 743-7759

Affiliate Location
214 Conestoga St.
Lancaster, PA 17603
(717) 394-4424

ALLEGHENY IRON AND METAL CO., INC.

DEALERS IN
IRON & STEEL SCRAP

Date 5-24-23

Name Wentworth

Address PFS

Truck No. 327TH Cust. No. 25504

Gross Weigh-In:
ID#: 327
07:26 am 05/24/23
80340 lb

Tare _____

Net Weigh-Out:
ID#: 327
07:41 am 05/24/23
80340 lb Gross
40600 lb Tare
39740 lb Net

VND
BURNAL TRUCK
PLATE

4 7

Haul - Fuel Charge:

NOTICE: NO REFRIGERATORS, AIR CONDITIONERS, TOXIC CHEMICALS
ASBESTOS, BATTERIES, TRANSFORMERS OR HAZARDOUS
DRUMS ACCEPTED

Received by _____ **K 53548**



PES Project Load Ticket

5120103

Load Ticket: 25504

Date: 05-24-23

Sold to: Allegheny ^{Scrap}
Location: TANK 273
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

- Non-Ferrous
- Insulated Copper Wire
 - No. 1 Copper Wire
 - Brass
 - Aluminum
 - Stainless, Grade _____
 - Other Alloy, Grade _____
 - Mixed
 - Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 79880 lbs

Tare Weight: 42400 lbs

Net Weight: 37480 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

09:01 (S)

Patrol

3

04

sets

SAMSUNG

Camden HI
430521

430521

city truck

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 023A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

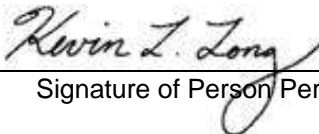
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 4 - 023A (GP R 276)

Sample/Analysis Information (Attachment for Section III.)

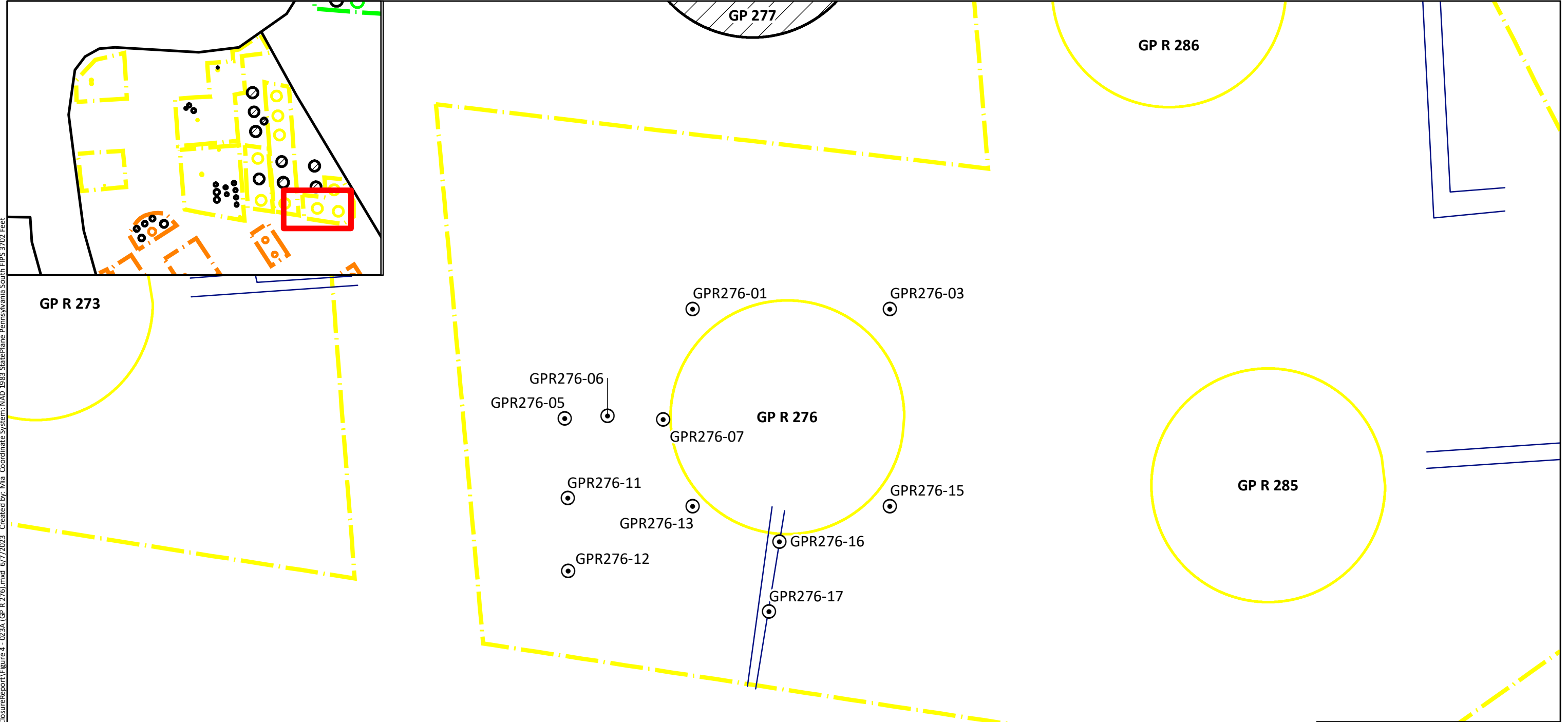
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR276-16	GPR276-16-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	45	3.9	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Chrysene	SW8270E	Soil	60	2.9	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Cumene	SW8260D	Soil	0.26	0.0018	12/7/2022	12/12/2022
GPR276-16	GPR276-16-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.0018	12/7/2022	12/12/2022
GPR276-16	GPR276-16-SS01	4.5	5	Fluorene	SW8270E	Soil	18	0.48	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Lead	SW6010D	Soil	284	2.91	12/7/2022	12/10/2022
GPR276-16	GPR276-16-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0036	12/7/2022	12/12/2022
GPR276-16	GPR276-16-SS01	4.5	5	Naphthalene	SW8270E	Soil	6.4	0.48	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Phenanthrene	SW8270E	Soil	150	2.9	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Pyrene	SW8270E	Soil	160	2.9	12/7/2022	12/11/2022
GPR276-16	GPR276-16-SS01	4.5	5	Toluene	SW8260D	Soil	0.013	0.0018	12/7/2022	12/12/2022
GPR276-16	GPR276-16-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.044	0.0036	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	0.99	0.24	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.059	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.12	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	0.31	0.24	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Anthracene	SW8270E	Soil	0.96	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Benzene	SW8260D	Soil	0.17	0.059	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	1.1	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	1.8	0.21	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	1.9	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.4	0.21	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Chrysene	SW8270E	Soil	1.2	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Cumene	SW8260D	Soil	1.4	0.12	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	0.32	0.12	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Fluorene	SW8270E	Soil	0.68	0.26	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Lead	SW6010D	Soil	383	2.95	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.24	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Naphthalene	SW8270E	Soil	8	0.26	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Phenanthrene	SW8270E	Soil	2.6	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Pyrene	SW8270E	Soil	1.7	0.16	12/7/2022	12/10/2022
GPR276-17	GPR276-17-SS01	4.5	5	Toluene	SW8260D	Soil	1	0.12	12/7/2022	12/12/2022
GPR276-17	GPR276-17-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	1.57	0.24	12/7/2022	12/12/2022

Notes:

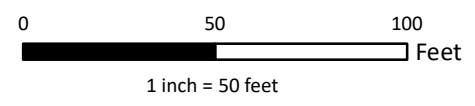
ND -- Not Detected

SS -- Soil Sample

File: N:\GIS\Prj\PO44_001_PESRM-PES\MXDS\AST\Work\Tank_Group_06\ForASTClosureReport\Figure 4 - 023A (GP R 276).mxd, 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
	PESRM Soil Sample Location



 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 023A (GP R 276) Figure 4
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



Photograph 1:
View of Tank 023A
(GP R 276) during
demolition.



Photograph 2:
View of Tank 023A
(GP R 276) during
demolition.



Photograph 3:

View of Tank 023A (GP R 276) during demolition.



Photograph 4:

View of the tank material loadout from Tank 023A (GP R 276) after demolition.



Photograph 5:

View of the tank material loadout from Tank 023A (GP R 276) after demolition.



PES Project Load Ticket

5120103

Load Ticket: 25463

Date: 05-11-23

Sold to: Allegany **Scrap**
Location: Tank 270
Carrier: Allegany

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: _____

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

Scale Ticket #: _____

Gross Weight: 373001b5

Tare Weight: 388001b5

Net Weight: 185001b5

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20040216

Date: 05/11/2023 2:18 PM

Phone: () -

Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 207454.486
Loads: 13774

RO-16 - ALLEGHANY ROLL OFF 16
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

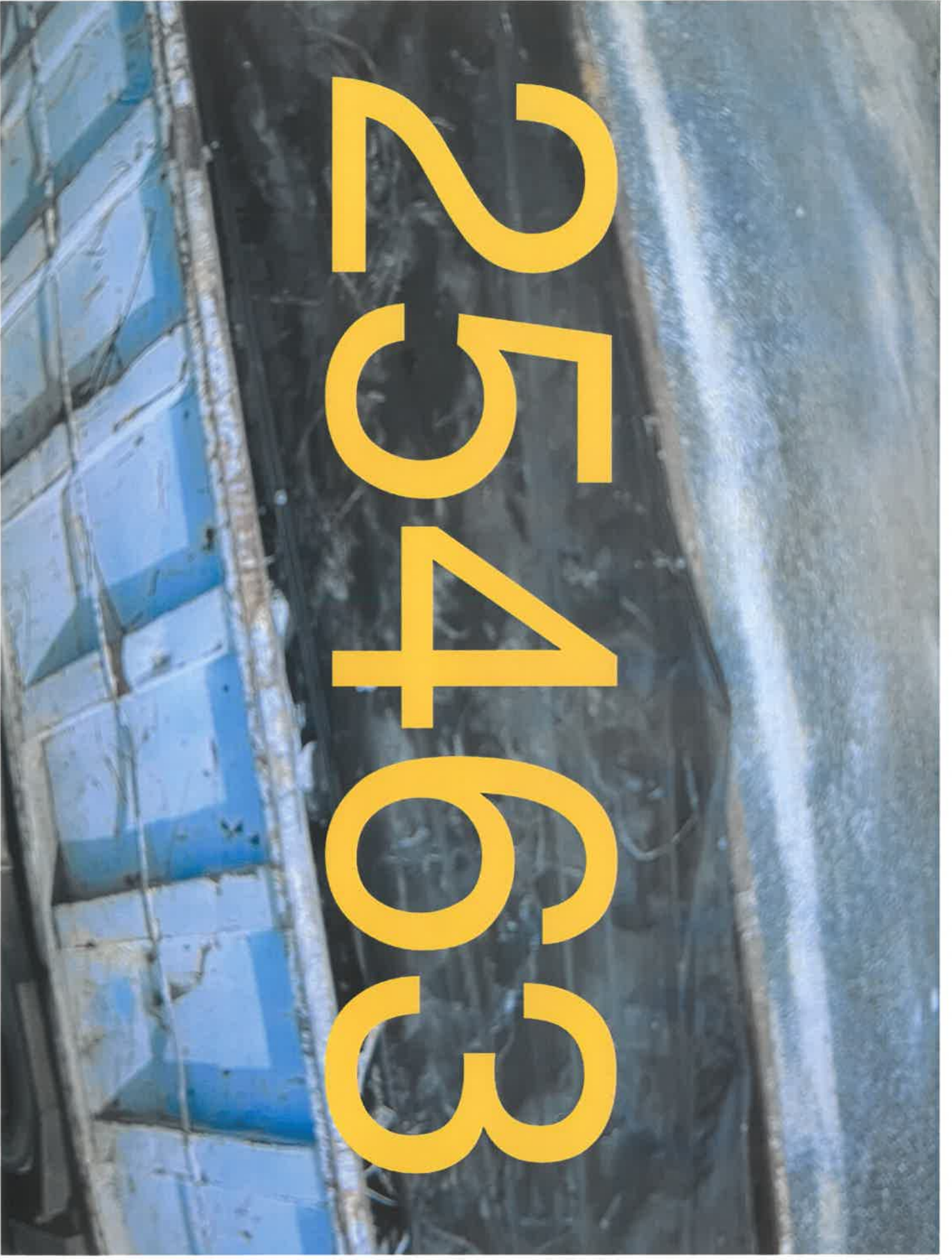
Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	9.25 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	57360.00	38860.00	18500.00

25463



Main & Yard
2200 E. Adams Ave
Philadelphia, PA 19124
(215) 743-7759

Affiliate Location
214 Conestoga St.
Lancaster, PA 17603
(717) 394-4424

ALLEGHENY IRON AND METAL CO., INC.

DEALERS IN
IRON & STEEL SCRAP

Date 5-11-23

Name Northman

Address PES

Truck No. RO16 Cust. No. 25463

Gross _____

Weigh-In:
ID#: 16
10:41 am 05/11/23
57340 lb

Tare _____

Net _____

Weigh-Out:
ID#: 16
10:49 am 05/11/23
57340 lb Gross
38960 lb Tare
18380 lb Net

LT IRON

Haul - Fuel Charge: _____

NOTICE: NO REFRIGERATORS, AIR CONDITIONERS, TOXIC CHEMICALS
ASBESTOS, BATTERIES, TRANSFORMERS OR HAZARDOUS
DRUMS ACCEPTED

Received by _____

K 53064



PES Project Load Ticket

5120103

Load Ticket: 25463

Date: 05-11-23

Scrap

Sold to: Allegheny
Location: Tank 270
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other _____

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminium
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

Scale Ticket #: _____

Gross Weight: 57300 lbs

Tare Weight: 38800 lbs

Net Weight: 18500 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

NorthStar Rep. Signature: _____



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 047A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

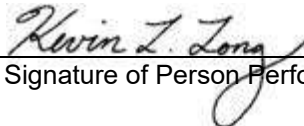
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/ 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 1 - 047A (GP R 1101)

Sample/Analysis Information (Attachment for Section III.)

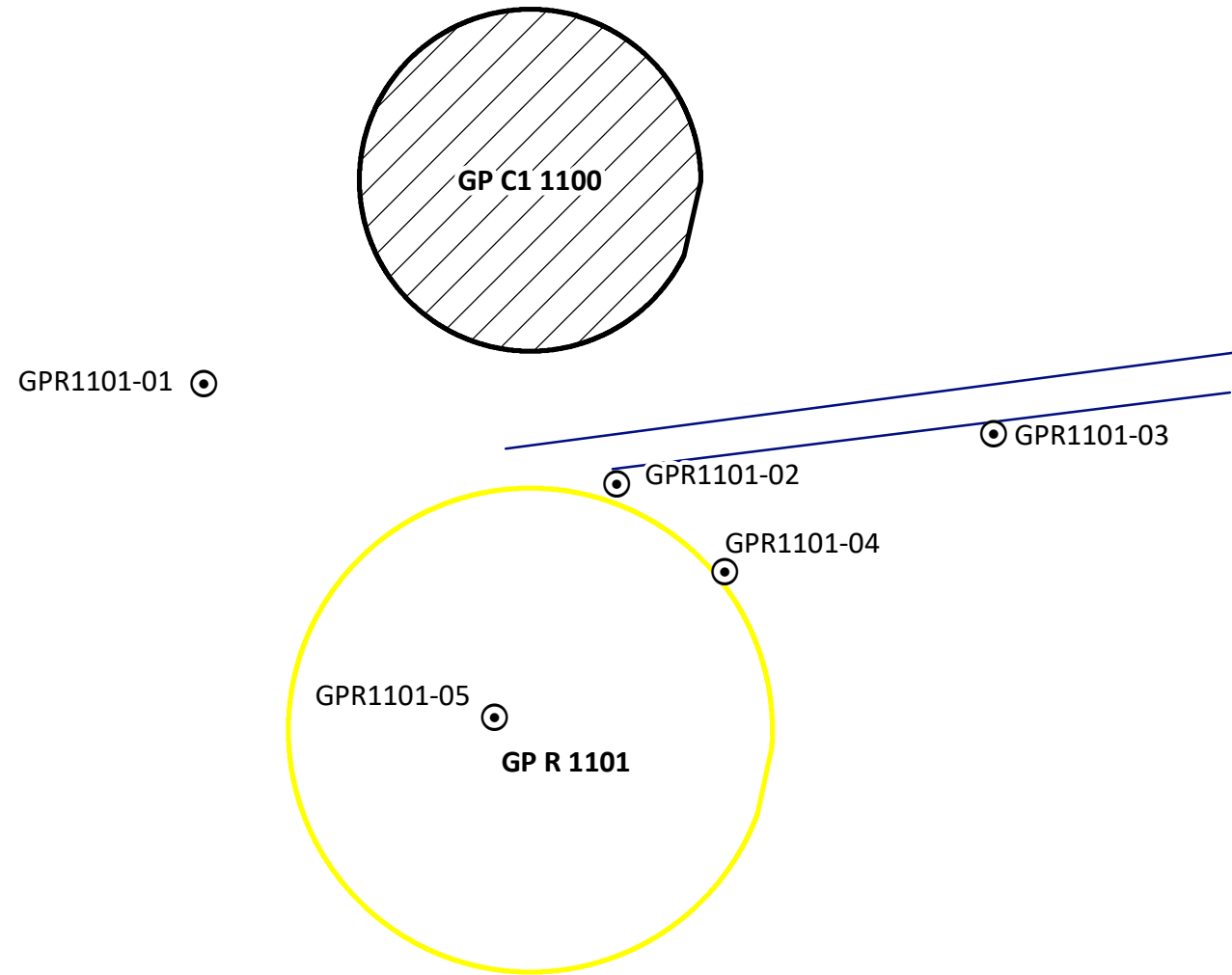
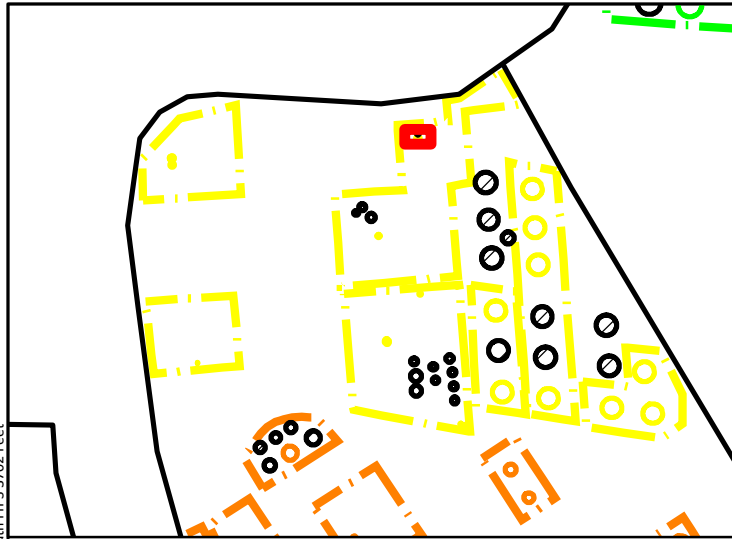
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR1101-05	GPR1101-05-SS01	4	4.5	Cumene	SW8260D	Soil	0.0065	0.0012	12/9/2022	12/14/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Ethyl Benzene	SW8260D	Soil	ND	0.0012	12/9/2022	12/14/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Fluorene	SW8270E	Soil	0.081	0.2	12/9/2022	12/11/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Indeno(1,2,3-cd)pyrene	SW8270E	Soil	0.13	0.16	12/9/2022	12/11/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Lead	SW6010D	Soil	169	2.32	12/9/2022	12/13/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0024	12/9/2022	12/14/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Naphthalene	SW8270E	Soil	0.098	0.2	12/9/2022	12/11/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Phenanthrene	SW8270E	Soil	0.3	0.12	12/9/2022	12/11/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Pyrene	SW8270E	Soil	0.8	0.12	12/9/2022	12/11/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Toluene	SW8260D	Soil	ND	0.0012	12/9/2022	12/14/2022
GPR1101-05	GPR1101-05-SS01	4	4.5	Xylenes (total)	SW8260D	Soil	0.00217	0.0024	12/9/2022	12/14/2022

Notes:

ND -- Not Detected

SS -- Soil Sample

File: N:\GIS\PI\PO44_001_PESRM-PES\WXDs\AST_Work\Tank_Group_06\FerASTClosureReport\Figure 1 - 047A (GP R 1101).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
	PESRM Soil Sample Location



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

Site Location and Sampling Map 047A (GP R 1101)
Figure 1

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 025A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

- A.** Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).
Bedrock N/A feet below land surface Water 15 feet below land surface
- B.** Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).
Length of piping N/A feet
- C. TANK SYSTEM REMOVED FROM THE GROUND/SITE**
- 1). Was obvious contamination observed while excavating, sampling or removing the tank system?
 NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.
 YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): During removal of the tank foundation, non-aqueous phase liquid (NAPL) and ponded water were encountered beneath the concrete pad. The observed NAPL was observed to be confined to the ring wall of the tank foundation. The source and volume of the release has not yet been determined.
-----> Complete item C.2. below.
- 2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?
 YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.
 NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.
- D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE**
- Was obvious contamination observed during sampling, boring or assessing water depths?
 NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.
 YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):

- Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.
- E.** If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

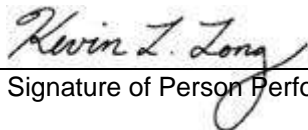
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 5 - 025A (GP R 281)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR281-10	GPR281-10-SS01	3.5	4	1,2-Dichloroethane	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0044	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Anthracene	SW8270E	Soil	0.79	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Benzene	SW8260D	Soil	ND	0.0011	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Benzo(a)anthracene	SW8270E	Soil	1.9	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Benzo(a)pyrene	SW8270E	Soil	1.9	0.2	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Benzo(b)fluoranthene	SW8270E	Soil	2	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Benzo(g,h,i)perylene	SW8270E	Soil	1	0.2	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Chrysene	SW8270E	Soil	1.9	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Cumene	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Ethyl Benzene	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Fluorene	SW8270E	Soil	0.52	0.25	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Lead	SW6010D	Soil	363	2.98	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0044	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Naphthalene	SW8270E	Soil	4.9	0.25	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Phenanthrene	SW8270E	Soil	2.4	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Pyrene	SW8270E	Soil	2.8	0.15	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Toluene	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-10	GPR281-10-SS01	3.5	4	Xylenes (total)	SW8260D	Soil	ND	0.0044	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	0.0012	0.0026	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00064	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0013	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	0.00045	0.0026	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Anthracene	SW8270E	Soil	0.042	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Benzene	SW8260D	Soil	0.00037	0.00064	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	0.11	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	0.1	0.15	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	0.17	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	0.086	0.15	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Chrysene	SW8270E	Soil	0.36	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0013	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	0.00021	0.0013	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Fluorene	SW8270E	Soil	0.051	0.18	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Lead	SW6010D	Soil	24.4	2.24	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0026	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Naphthalene	SW8270E	Soil	0.068	0.18	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Phenanthrene	SW8270E	Soil	0.16	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Pyrene	SW8270E	Soil	0.32	0.11	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0013	12/6/2022	12/8/2022
GPR281-11	GPR281-11-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.00184	0.0026	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	0.00038	0.0022	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00054	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0011	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Anthracene	SW8270E	Soil	ND	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Benzene	SW8260D	Soil	0.00036	0.00054	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	0.26	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	ND	0.74	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	0.19	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	0.11	0.74	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Chrysene	SW8270E	Soil	0.64	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0011	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	0.00016	0.0011	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Fluorene	SW8270E	Soil	0.092	0.93	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Lead	SW6010D	Soil	162	11.2	12/6/2022	12/12/2022
GPR281-12	GPR281-12-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Naphthalene	SW8270E	Soil	ND	0.93	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Phenanthrene	SW8270E	Soil	0.3	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Pyrene	SW8270E	Soil	0.54	0.56	12/6/2022	12/10/2022
GPR281-12	GPR281-12-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0011	12/6/2022	12/8/2022
GPR281-12	GPR281-12-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0022	12/6/2022	12/8/2022

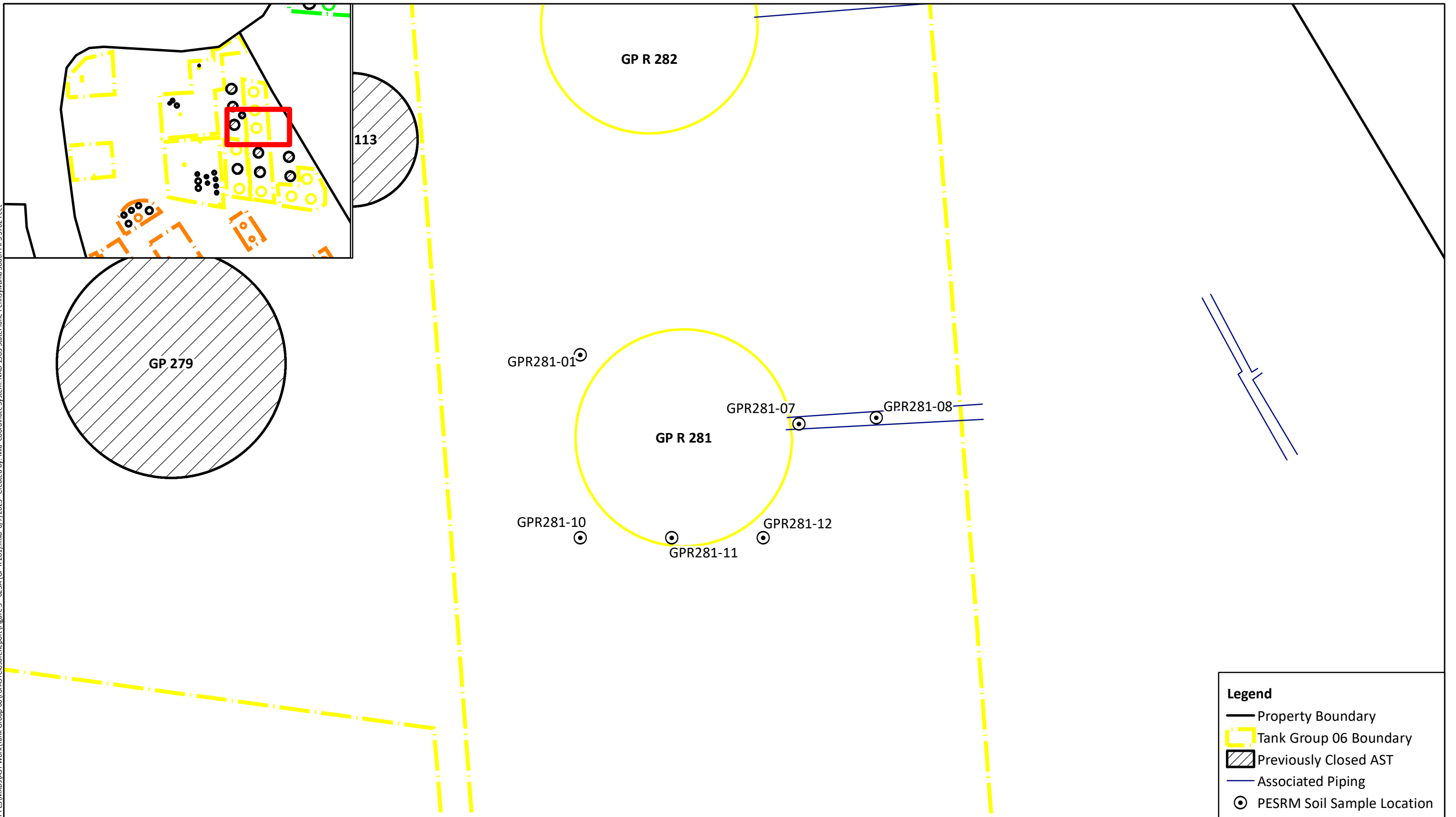
Notes:

ND -- Not Detected

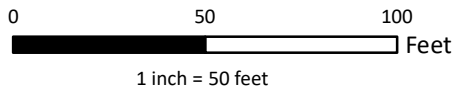
SS -- Soil Sample

LNAPL -- Light Nonaqueous Phase Liquids

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXDS\AST\Work\Tank Group 06\ForASTClosureReport\Figure 5 - 025A (GP R 281).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
	PESRM Soil Sample Location



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 025A (GP R 281)
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

Figure 5



Photograph 1:

View of Tank 025A (GP R 281) during demolition.



Photograph 2:

View of test pits advanced in Tank 025A (GP R 281) foundation slab following demolition.



Photograph 3:
View of NAPL beneath the tank foundation at Tank 025A (GP R 281).



Photograph 4:
View of NAPL beneath the tank foundation at Tank 025A (GP R 281).



PES Project Load Ticket

S120103

Load Ticket: 20161

Date: 04-26-22

Sold to: Allegheny Scrap
Location: Tank 281
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

Scale Ticket #: _____

Gross Weight: 83600 lbs

Tare Weight: 42400 lbs

Net Weight: 41200 lbs

NorthStar Rep. Signature: [Signature]

NorthStar Rep. Signature: _____

Received By: [Signature]

HILCO REDEVELOPEMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20036035

Date: 04/26/2022 12:04 PM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 150524.516

Loads: 9808

DT327-1109 - ALLEGHENY TRUCK 327-1109

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	20.6 tn						

Weight Information

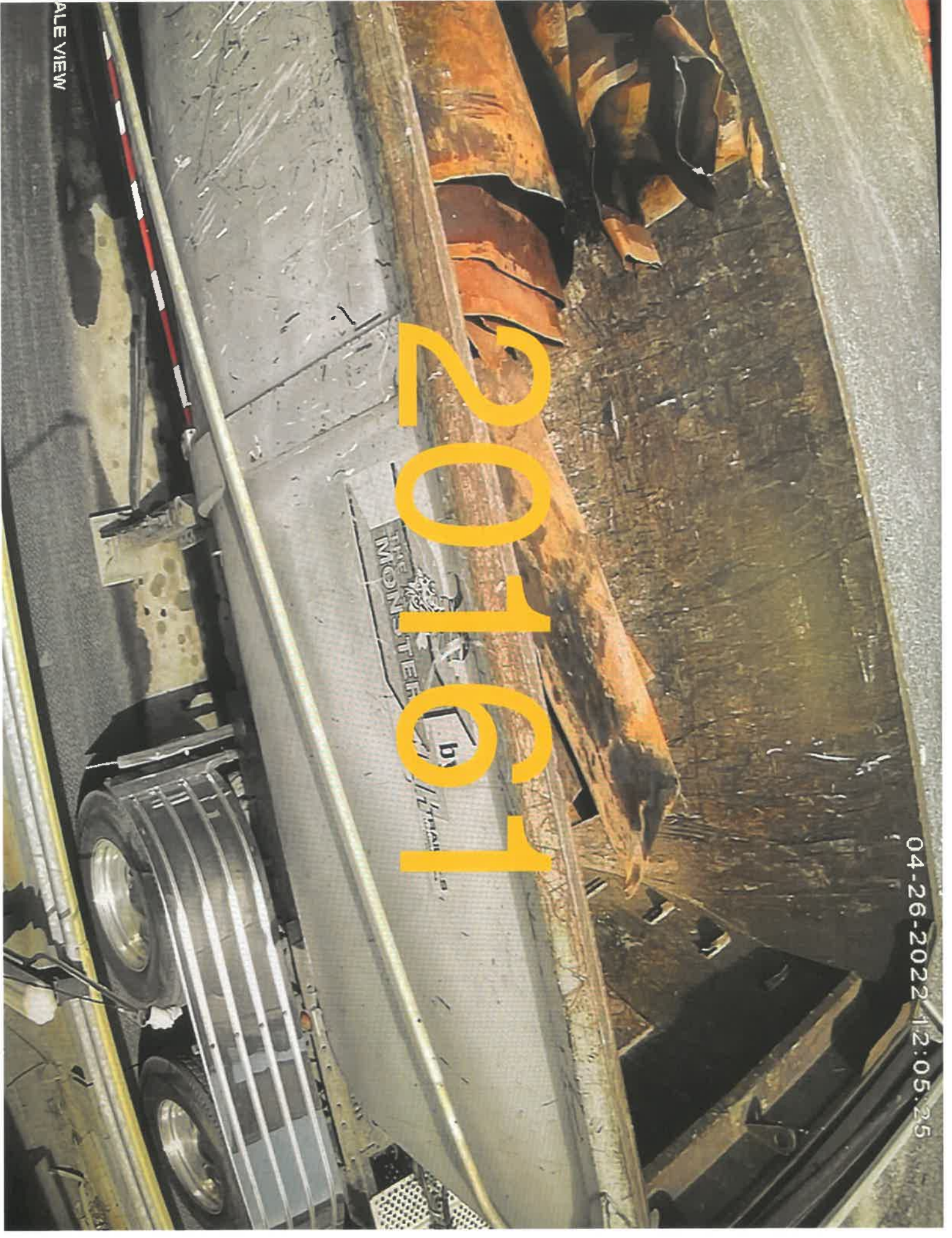
Material	Gross	Tare	Net
SCRAP	83600.00	42400.00	41200.00

04-26-2022 12:05:25

20161

THE MONT-TECH

PALE VIEW



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 026A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

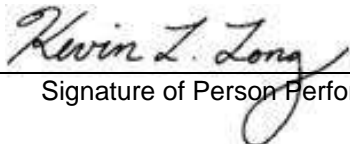
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

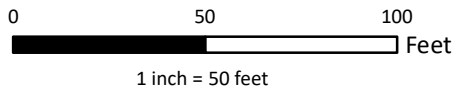
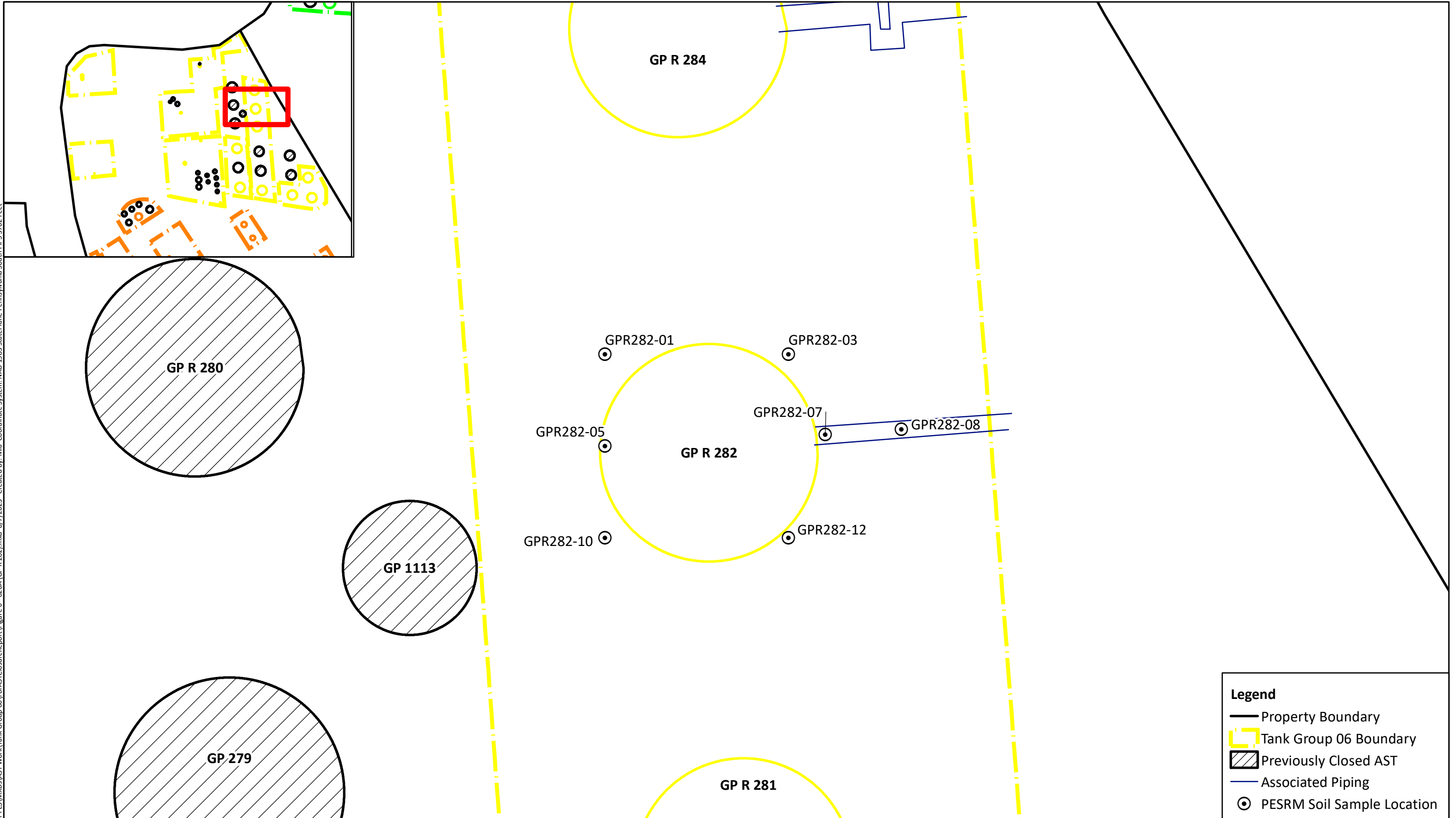
Table 6 - 026A (GP R 282)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR282-08	GPR282-08-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0039	12/6/2022	12/12/2022
GPR282-08	GPR282-08-SS01	4.5	5	Naphthalene	SW8270E	Soil	7.7	0.27	12/6/2022	12/8/2022
GPR282-08	GPR282-08-SS01	4.5	5	Phenanthrene	SW8270E	Soil	4.5	0.16	12/6/2022	12/8/2022
GPR282-08	GPR282-08-SS01	4.5	5	Pyrene	SW8270E	Soil	4.4	0.16	12/6/2022	12/8/2022
GPR282-08	GPR282-08-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.002	12/6/2022	12/12/2022
GPR282-08	GPR282-08-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.0055	0.0039	12/6/2022	12/12/2022
GPR282-10	GPR282-10-SS01	3	3.5	1,2,4-Trimethylbenzene	SW8260D	Soil	0.22	0.3	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	1,2-Dibromoethane	SW8260D	Soil	ND	0.076	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	1,2-Dichloroethane	SW8260D	Soil	ND	0.15	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	1,3,5-Trimethylbenzene	SW8260D	Soil	0.11	0.3	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Anthracene	SW8270E	Soil	9.6	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Benzene	SW8260D	Soil	0.094	0.076	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Benzo(a)anthracene	SW8270E	Soil	13	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Benzo(a)pyrene	SW8270E	Soil	12	2.1	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Benzo(b)fluoranthene	SW8270E	Soil	14	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Benzo(g,h,i)perylene	SW8270E	Soil	5.9	2.1	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Chrysene	SW8270E	Soil	12	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Cumene	SW8260D	Soil	0.072	0.15	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Ethyl Benzene	SW8260D	Soil	0.11	0.15	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Fluorene	SW8270E	Soil	8.2	2.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Lead	SW6010D	Soil	411	3.09	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.3	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Naphthalene	SW8270E	Soil	5.3	2.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Phenanthrene	SW8270E	Soil	28	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Pyrene	SW8270E	Soil	26	1.6	12/6/2022	12/8/2022
GPR282-10	GPR282-10-SS01	3	3.5	Toluene	SW8260D	Soil	0.44	0.15	12/6/2022	12/9/2022
GPR282-10	GPR282-10-SS01	3	3.5	Xylenes (total)	SW8260D	Soil	0.42	0.3	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.0026	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00066	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0013	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	1,3,5-Trimethylbenzene	SW8260D	Soil	0.00028	0.0026	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Anthracene	SW8270E	Soil	0.85	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Benzene	SW8260D	Soil	ND	0.00066	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Benzo(a)anthracene	SW8270E	Soil	0.5	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Benzo(a)pyrene	SW8270E	Soil	0.52	0.46	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Benzo(b)fluoranthene	SW8270E	Soil	0.58	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Benzo(g,h,i)perylene	SW8270E	Soil	0.59	0.46	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Chrysene	SW8270E	Soil	0.53	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Cumene	SW8260D	Soil	ND	0.0013	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Ethyl Benzene	SW8260D	Soil	ND	0.0013	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Fluorene	SW8270E	Soil	0.67	0.58	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Lead	SW6010D	Soil	295	2.46	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0026	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Naphthalene	SW8270E	Soil	9.6	0.58	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Phenanthrene	SW8270E	Soil	2.4	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Pyrene	SW8270E	Soil	0.81	0.35	12/6/2022	12/8/2022
GPR282-12	GPR282-12-SS01	4	4.5	Toluene	SW8260D	Soil	ND	0.0013	12/6/2022	12/9/2022
GPR282-12	GPR282-12-SS01	4	4.5	Xylenes (total)	SW8260D	Soil	ND	0.0026	12/6/2022	12/9/2022

Notes:
 ND -- Not Detected
 SS -- Soil Sample

File: N:\GIS\Projects\044_001_PESRM-PES\MapDocs\AST\Work\Tank_Group_06\ForASTClosureReport\Figure 6 - 026A (GP R 282).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Associated Piping
- PESRM Soil Sample Location

SAFETY FIRST



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

Site Location and Sampling Map 026A (GP R 282)

Figure 6



Photograph 1:

View of Tank 026A
(GP R 282) prior
to demolition.



PES Project Load Ticket

S120103

Load Ticket: 20739

Date: 05-12-27

Sold to: Allighan **Scrap**
Location: Tank 282
Carrier: Allighan

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Scale Ticket #: _____

Gross Weight: 68620 lbs

Tare Weight: 42400 lbs

Net Weight: 26220 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20036584
Date: 05/12/2022 10:55 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 156016.236
Loads: 10203

DT327-1109 - ALLEGHENY TRUCK 327-1109
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	13.11 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	68620.00	42400.00	26220.00

20739

05-12-2022 10:56:12

THE MONSTER
by
CIVILIZATION

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 004A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

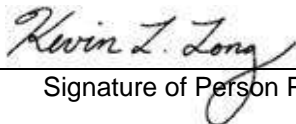
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹	Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 7 - 004A (GP R 284)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR284-13	GPR284-13-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	6.6	1.2	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Chrysene	SW8270E	Soil	17	0.87	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0016	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.0016	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Fluorene	SW8270E	Soil	0.98	1.4	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Lead	SW6010D	Soil	87.6	3.38	12/6/2022	12/8/2022
GPR284-13	GPR284-13-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0033	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Naphthalene	SW8270E	Soil	6.7	1.4	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Phenanthrene	SW8270E	Soil	4.7	0.87	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Pyrene	SW8270E	Soil	23	0.87	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0016	12/6/2022	12/9/2022
GPR284-13	GPR284-13-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.0019	0.0033	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.002	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00051	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.001	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.002	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Anthracene	SW8270E	Soil	0.57	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.00051	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	2.5	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	2.3	0.15	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	2.7	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.2	0.15	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Chrysene	SW8270E	Soil	2.4	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.001	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.001	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Fluorene	SW8270E	Soil	0.65	0.19	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Lead	SW6010D	Soil	30.1	2.16	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.002	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Naphthalene	SW8270E	Soil	2.8	0.19	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Phenanthrene	SW8270E	Soil	2.7	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Pyrene	SW8270E	Soil	3.3	0.11	12/6/2022	12/8/2022
GPR284-14	GPR284-14-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.001	12/6/2022	12/9/2022
GPR284-14	GPR284-14-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.00126	0.002	12/6/2022	12/9/2022
GPR284-15	GPR284-15-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.0021	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00053	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.001	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0021	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Anthracene	SW8270E	Soil	0.52	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Benzene	SW8260D	Soil	0.0002	0.00053	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	2.4	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	2	0.15	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	2.7	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.1	0.15	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Chrysene	SW8270E	Soil	2.4	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.001	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.001	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Fluorene	SW8270E	Soil	0.038	0.19	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Lead	SW6010D	Soil	5090	2.22	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0021	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Naphthalene	SW8270E	Soil	0.049	0.19	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Phenanthrene	SW8270E	Soil	2	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Pyrene	SW8270E	Soil	3.3	0.11	12/6/2022	12/8/2022
GPR284-15	GPR284-15-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.001	12/6/2022	12/12/2022
GPR284-15	GPR284-15-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0021	12/6/2022	12/12/2022

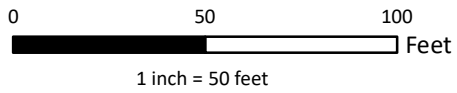
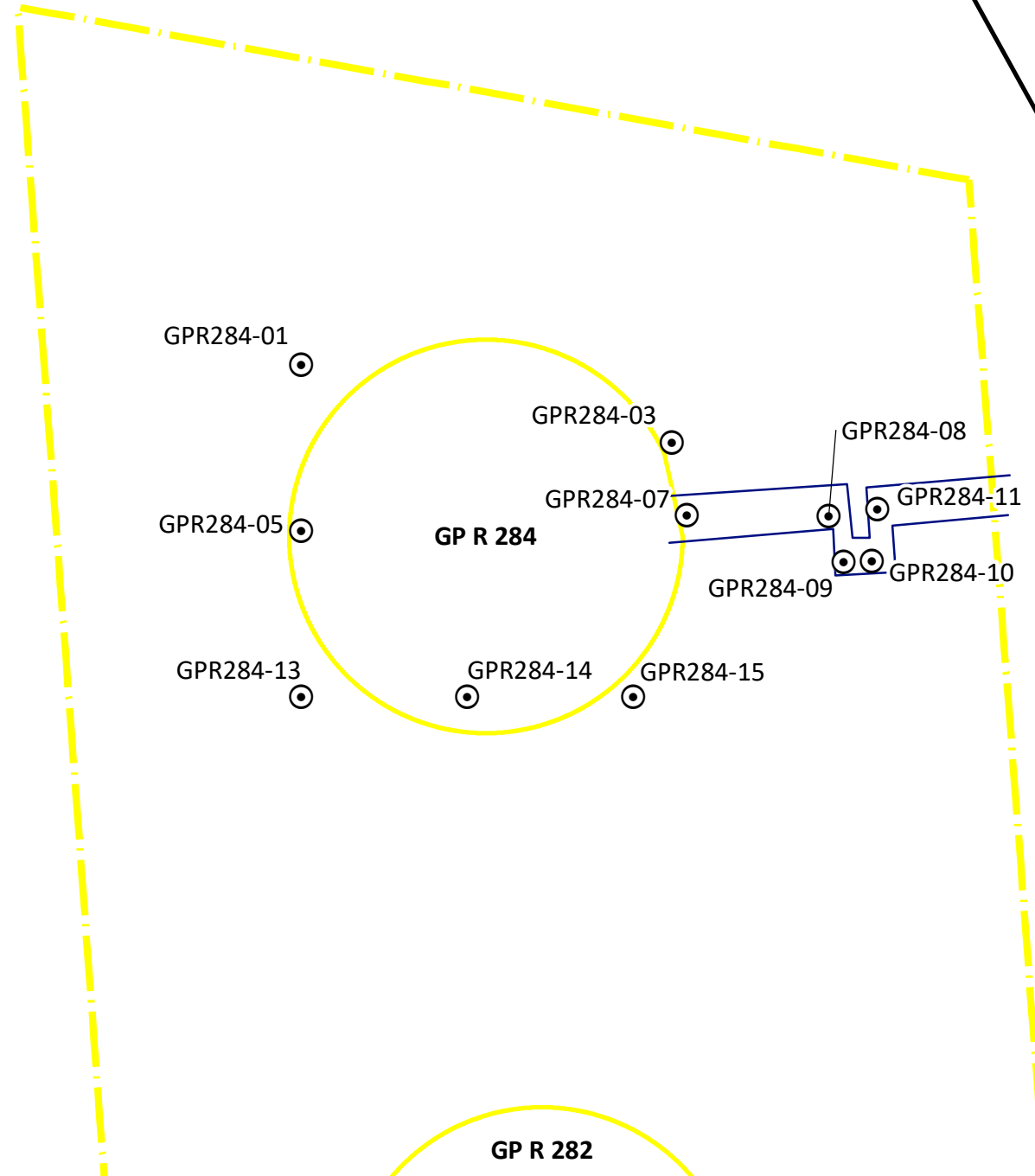
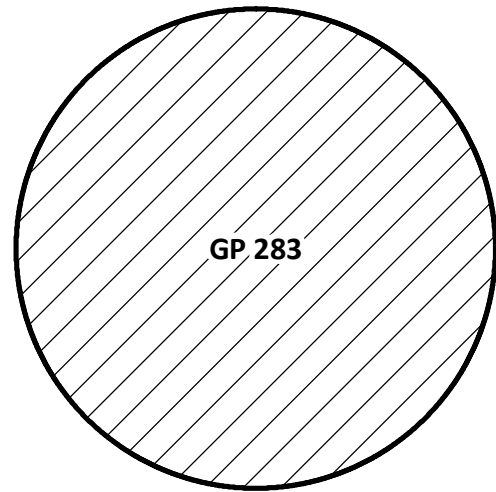
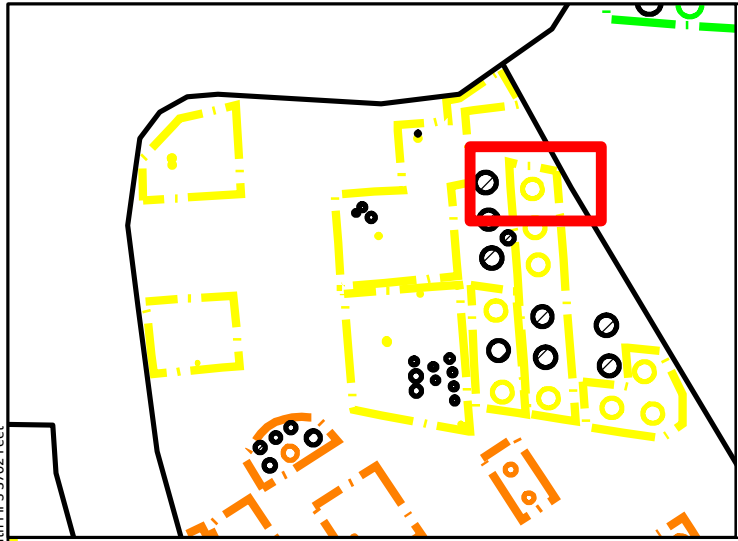
Notes:

ND -- Not Detected

SS -- Soil Sample

-- DUP-52 is a field duplicate associated with sample GPR284-10-SS01.

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXS\AST\Work\Tank_Group_06\ForASTClosureReport\Figure 7 - 004A (GP R 284).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
	PESRM Soil Sample Location

 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 004A (GP R 284) Figure 7
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		



Photograph 1:
View of Tank 004A
(GP R 284) prior
to demolition.



Photograph 2:
View of Tank 004A
(GP R 284) being
cleaned.



Photograph 3:
View of Tank 004A (GP R 284) during demolition.



Photograph 4:
View of scrap cleanup at Tank 004A (GP R 284).



PES Project Load Ticket

Load Ticket: 20714

Date: 05-12-22

Sold to: Allighmy **Scrap**
Location: 10114 284
Carrier: Allighmy

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

Waste Stream

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Disposal Facility: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Ticket #: _____

Gross Weight: 78720 lbs

Tare Weight: 40180 lbs

Net Weight: 38240 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS

3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20036558

Date: 05/12/2022 7:05 AM

Phone: () -

Fax: () -

Customer: HILCO

HILCO

Order Number: 001

SCRAP REMOVAL

Tons: 155725.556

Loads: 10185

DT1-56 - ALLEGHENY TRUCK 1 W/TRAILER 56

CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	19.12 tn						

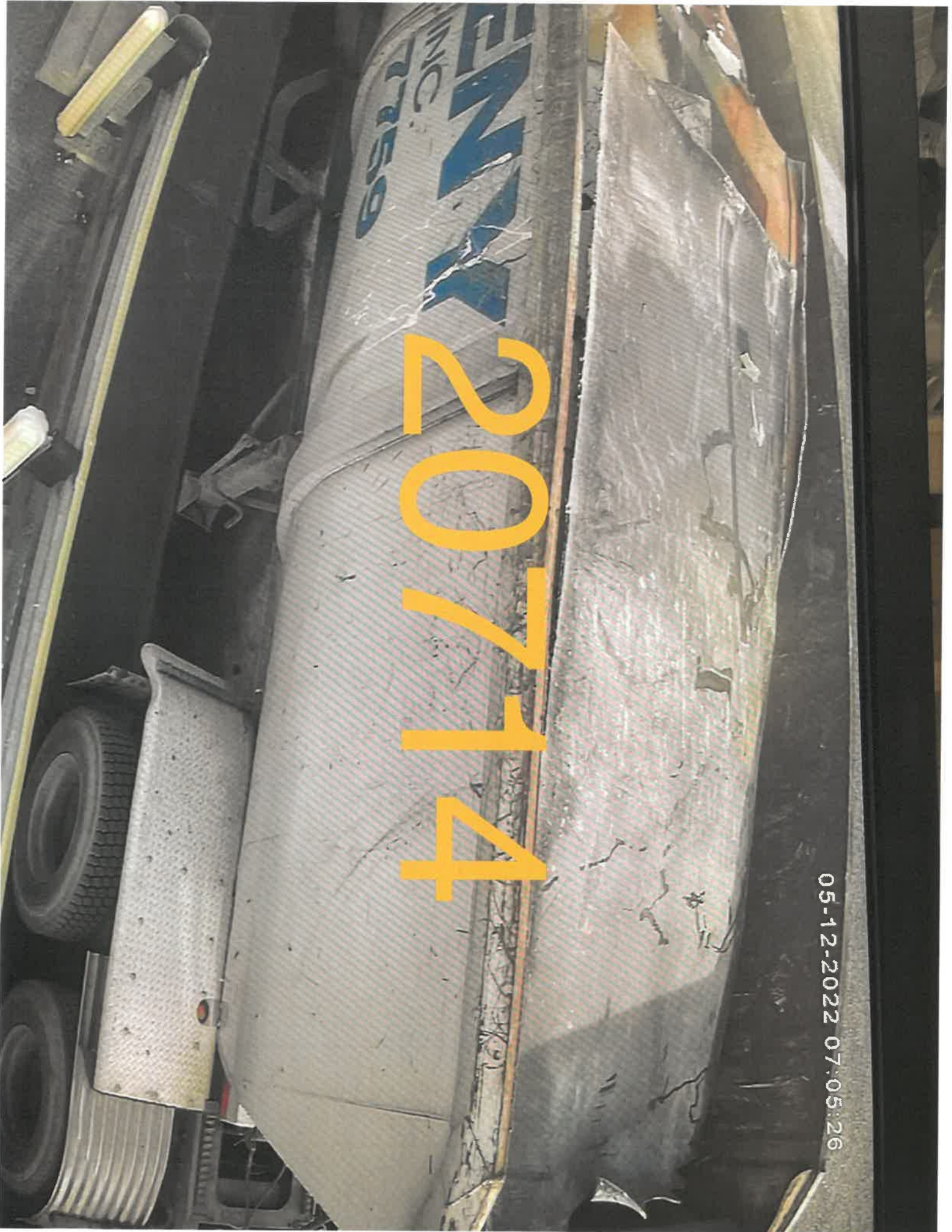
Weight Information

Material	Gross	Tare	Net
SCRAP	78720.00	40480.00	38240.00

05-12-2022 07:05:26

20714

EMERSON
MCR59



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 027A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

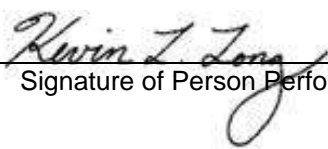
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹	Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 8 - 027A (GP R 285)

Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR285-08	DUP-53	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0035	12/7/2022	12/12/2022
GPR285-08	DUP-53	4.5	5	Naphthalene	SW8270E	Soil	6.9	0.24	12/7/2022	12/10/2022
GPR285-08	DUP-53	4.5	5	Phenanthrene	SW8270E	Soil	2	0.14	12/7/2022	12/10/2022
GPR285-08	DUP-53	4.5	5	Pyrene	SW8270E	Soil	1.4	0.14	12/7/2022	12/10/2022
GPR285-08	DUP-53	4.5	5	Toluene	SW8260D	Soil	ND	0.0017	12/7/2022	12/12/2022
GPR285-08	DUP-53	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0035	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.0033	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.00082	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0033	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Anthracene	SW8270E	Soil	0.5	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.00082	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	1.2	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	1.8	0.18	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	1.8	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1	0.18	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Chrysene	SW8270E	Soil	1.2	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Fluorene	SW8270E	Soil	0.38	0.23	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Lead	SW6010D	Soil	160	2.76	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0033	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Naphthalene	SW8270E	Soil	7	0.23	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Phenanthrene	SW8270E	Soil	1.5	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Pyrene	SW8270E	Soil	1.2	0.14	12/7/2022	12/10/2022
GPR285-08	GPR285-08-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-08	GPR285-08-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0033	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.0032	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.0008	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.0032	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Anthracene	SW8270E	Soil	0.77	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.0008	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	1.6	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	1.9	0.19	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	2	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.2	0.19	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Chrysene	SW8270E	Soil	1.4	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Fluorene	SW8270E	Soil	0.4	0.24	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Lead	SW6010D	Soil	113	2.84	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0032	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Naphthalene	SW8270E	Soil	7.6	0.24	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Phenanthrene	SW8270E	Soil	2.5	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Pyrene	SW8270E	Soil	2	0.14	12/7/2022	12/10/2022
GPR285-11	GPR285-11-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0016	12/7/2022	12/12/2022
GPR285-11	GPR285-11-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0032	12/7/2022	12/12/2022
GPR285-13	GPR285-13-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	80	4.2	12/7/2022	12/12/2022
GPR285-13	GPR285-13-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.11	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.21	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	80	4.2	12/7/2022	12/12/2022
GPR285-13	GPR285-13-SS01	4.5	5	Anthracene	SW8270E	Soil	2	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Benzene	SW8260D	Soil	1.1	0.11	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	4.9	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	4.9	0.19	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	5.8	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	4.5	0.19	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Chrysene	SW8270E	Soil	4.4	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Cumene	SW8260D	Soil	12	0.21	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	23	0.21	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	Fluorene	SW8270E	Soil	1.1	0.23	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Lead	SW6010D	Soil	129	2.78	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.42	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	Naphthalene	SW8270E	Soil	13	1.2	12/7/2022	12/11/2022
GPR285-13	GPR285-13-SS01	4.5	5	Phenanthrene	SW8270E	Soil	7.3	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Pyrene	SW8270E	Soil	6.8	0.14	12/7/2022	12/10/2022
GPR285-13	GPR285-13-SS01	4.5	5	Toluene	SW8260D	Soil	6.9	0.21	12/7/2022	12/13/2022
GPR285-13	GPR285-13-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	39	0.42	12/7/2022	12/13/2022

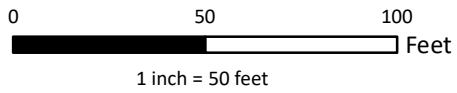
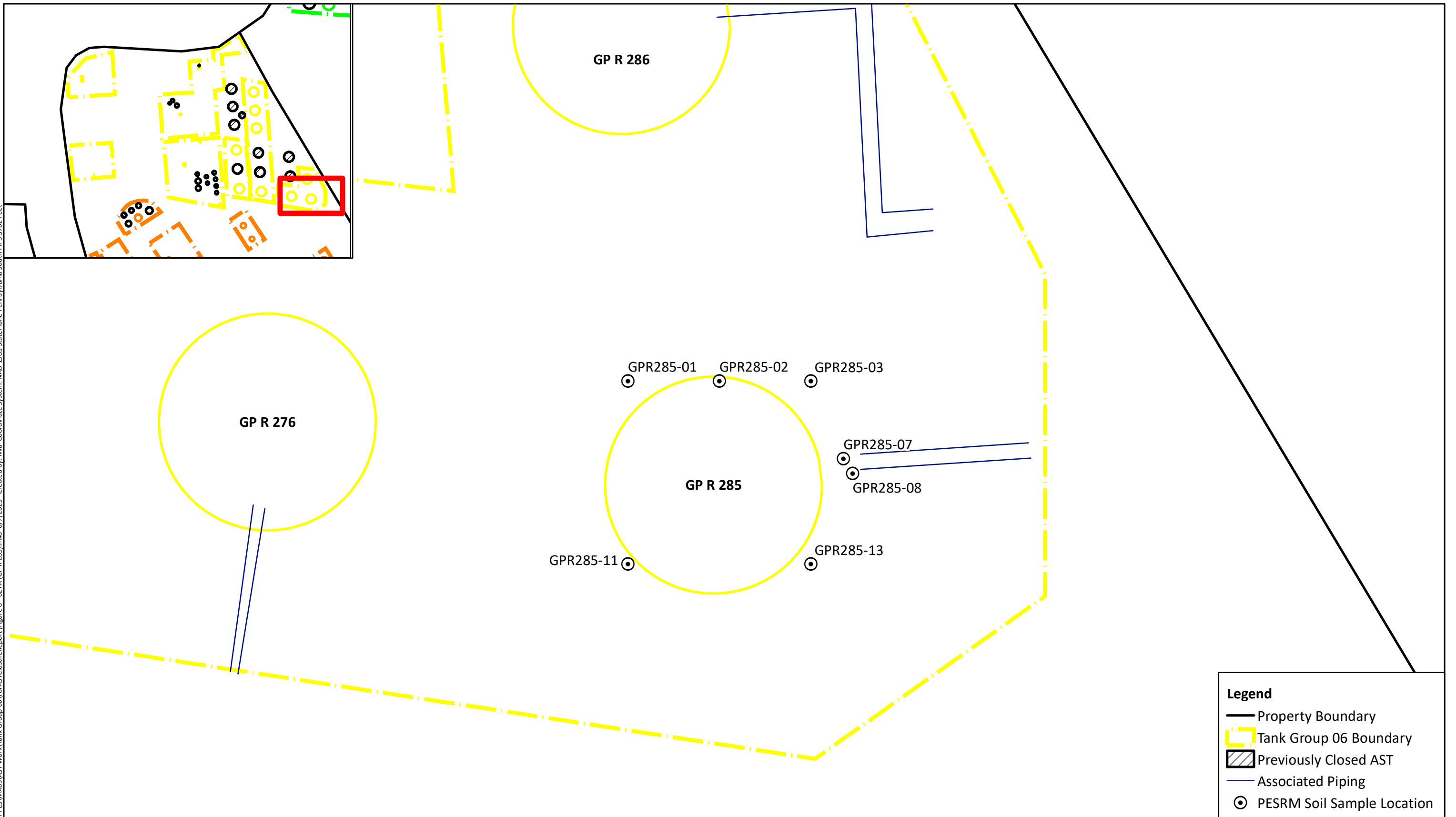
Notes:

ND -- Not Detected

SS -- Soil Sample

-- DUP-53 is a field duplicate associated with sample GPR285-08-SS01.

File: N:\GIS\Prj\PO44_001_PESRM-PES\MXDS\AST\Work\Tank_Group_06\ForASTClosureReport\Figure 8 - 027A (GP R 285).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 027A (GP R 285) Figure 8
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		



Demo started
at GP285

Photograph 1:

View of Tank 027A (GP R 285) during to demolition.



Continued cleanup at GP285

Photograph 2:

View of cleanup at Tank 027A (GP R 285).



Photograph 3:
View of scrap material load out at Tank 027A (GP R 285).



Photograph 4:
View of scrap material load out at Tank 027A (GP R 285).



PES Project Load Ticket

Load Ticket: 20305

Date: 05-02-22

Sold to: Allegheny Scrap
Location: Tank 205
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1 Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

Scale Ticket #: _____

Gross Weight: 58420 lbs

Tare Weight: 40480 lbs

Net Weight: 17940 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20036170
Date: 05/02/2022 8:57 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 152407.506
Loads: 9935

DT1-56 - ALLEGHENY TRUCK 1 W/TRAILER 56
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	8.97 tn						

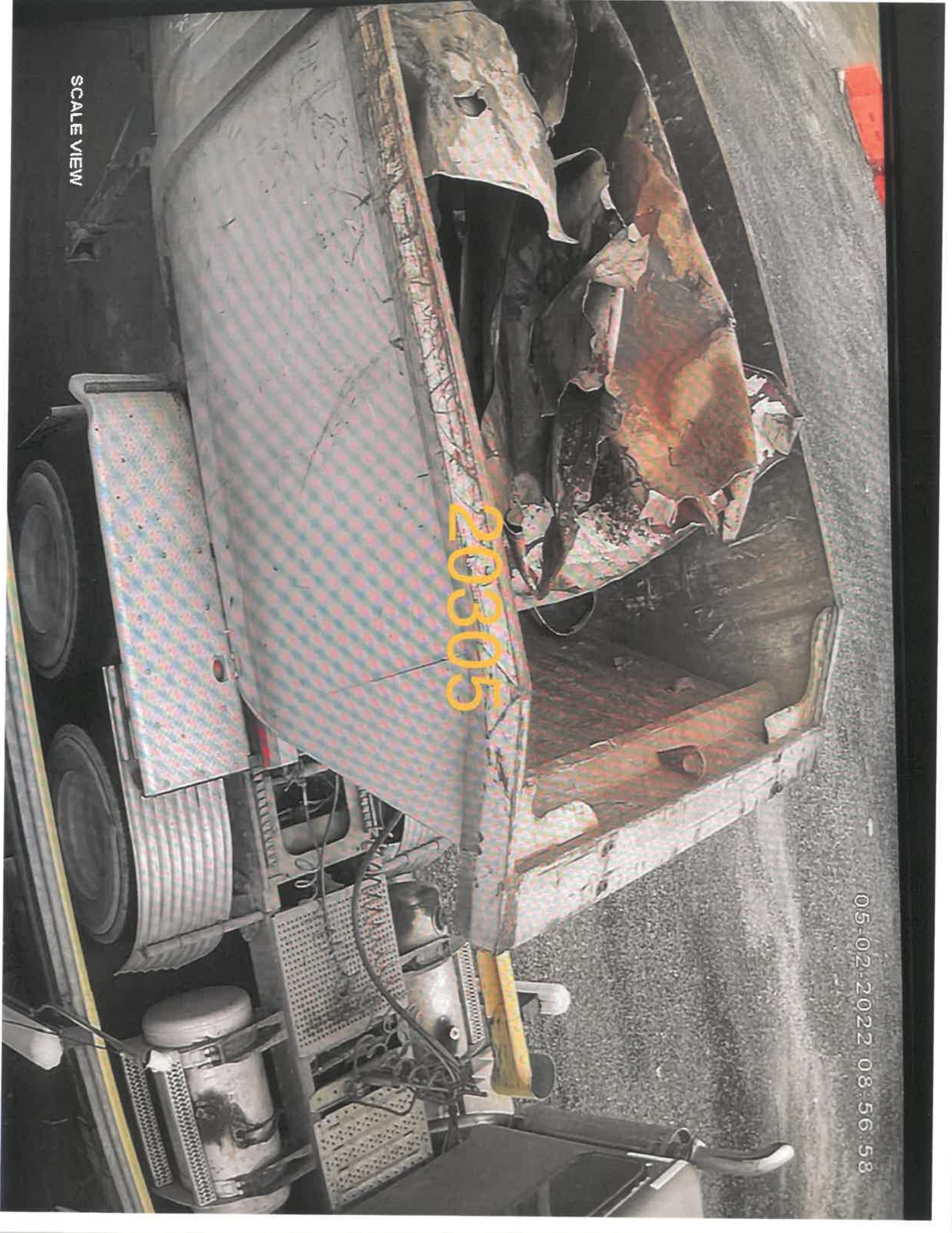
Weight Information

Material	Gross	Tare	Net
SCRAP	58420.00	40480.00	17940.00

05-02-2022 08:56:58

20305

SCALE VIEW



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 028A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

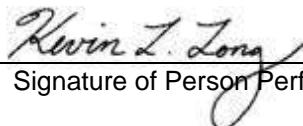
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn (Print Name) falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/30/2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

- P - Samples placed in a soil sample vial with a preservative present.
- E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

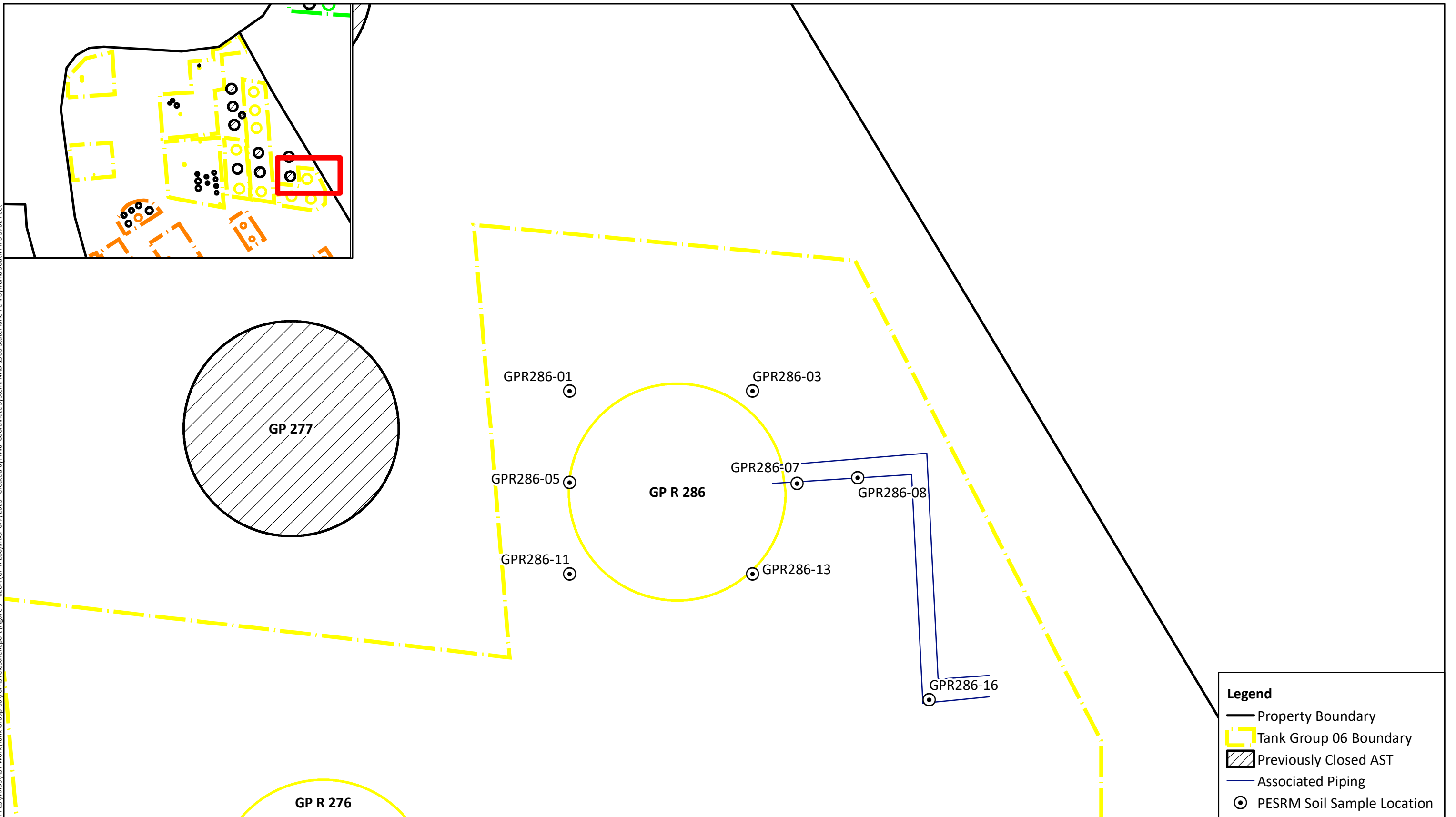
Table 9 - 028A (GP P 286)

Sample/Analysis Information (Attachment for Section III.)

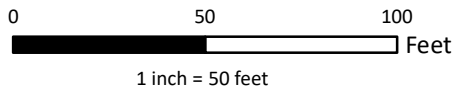
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR286-08	GPR286-08-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.0034	12/8/2022	12/12/2022
GPR286-08	GPR286-08-SS01	4.5	5	Naphthalene	SW8270E	Soil	0.59	0.24	12/8/2022	12/11/2022
GPR286-08	GPR286-08-SS01	4.5	5	Phenanthrene	SW8270E	Soil	0.24	0.14	12/8/2022	12/11/2022
GPR286-08	GPR286-08-SS01	4.5	5	Pyrene	SW8270E	Soil	0.34	0.14	12/8/2022	12/11/2022
GPR286-08	GPR286-08-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.0017	12/8/2022	12/12/2022
GPR286-08	GPR286-08-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.0034	12/8/2022	12/12/2022
GPR286-11	GPR286-11-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.1	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.026	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.052	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.1	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Anthracene	SW8270E	Soil	0.094	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.026	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	0.27	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	0.33	0.15	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	0.39	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	0.21	0.15	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Chrysene	SW8270E	Soil	0.29	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Cumene	SW8260D	Soil	0.57	0.052	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.052	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Fluorene	SW8270E	Soil	0.071	0.18	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Lead	SW6010D	Soil	48.9	2.19	12/8/2022	12/10/2022
GPR286-11	GPR286-11-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.1	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Naphthalene	SW8270E	Soil	1.2	0.18	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Phenanthrene	SW8270E	Soil	0.35	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Pyrene	SW8270E	Soil	0.38	0.11	12/8/2022	12/11/2022
GPR286-11	GPR286-11-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.052	12/8/2022	12/14/2022
GPR286-11	GPR286-11-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	0.101	0.1	12/8/2022	12/14/2022
GPR286-13	GPR286-13-SS01	4.5	5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	1,2-Dibromoethane	SW8260D	Soil	ND	0.001	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	1,2-Dichloroethane	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Anthracene	SW8270E	Soil	0.9	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Benzene	SW8260D	Soil	ND	0.001	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Benzo(a)anthracene	SW8270E	Soil	1.7	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Benzo(a)pyrene	SW8270E	Soil	2.5	0.21	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Benzo(b)fluoranthene	SW8270E	Soil	2.8	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Benzo(g,h,i)perylene	SW8270E	Soil	1.9	0.21	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Chrysene	SW8270E	Soil	1.8	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Cumene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Ethyl Benzene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Fluorene	SW8270E	Soil	0.46	0.26	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Lead	SW6010D	Soil	302	3.13	12/8/2022	12/10/2022
GPR286-13	GPR286-13-SS01	4.5	5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Naphthalene	SW8270E	Soil	10	0.26	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Phenanthrene	SW8270E	Soil	2.1	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Pyrene	SW8270E	Soil	1.6	0.16	12/8/2022	12/11/2022
GPR286-13	GPR286-13-SS01	4.5	5	Toluene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-13	GPR286-13-SS01	4.5	5	Xylenes (total)	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	1,2,4-Trimethylbenzene	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	1,2-Dibromoethane	SW8260D	Soil	ND	0.001	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	1,2-Dichloroethane	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	1,3,5-Trimethylbenzene	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Anthracene	SW8270E	Soil	ND	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Benzene	SW8260D	Soil	ND	0.001	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Benzo(a)anthracene	SW8270E	Soil	0.036	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Benzo(a)pyrene	SW8270E	Soil	ND	0.2	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Benzo(b)fluoranthene	SW8270E	Soil	ND	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Benzo(g,h,i)perylene	SW8270E	Soil	ND	0.2	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Chrysene	SW8270E	Soil	0.032	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Cumene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Ethyl Benzene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Fluorene	SW8270E	Soil	ND	0.24	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Lead	SW6010D	Soil	7.52	2.93	12/8/2022	12/10/2022
GPR286-16	GPR286-16-SS01	4	4.5	Methyl tert-butyl ether	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Naphthalene	SW8270E	Soil	ND	0.24	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Phenanthrene	SW8270E	Soil	0.031	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Pyrene	SW8270E	Soil	0.06	0.15	12/8/2022	12/11/2022
GPR286-16	GPR286-16-SS01	4	4.5	Toluene	SW8260D	Soil	ND	0.002	12/8/2022	12/12/2022
GPR286-16	GPR286-16-SS01	4	4.5	Xylenes (total)	SW8260D	Soil	ND	0.004	12/8/2022	12/12/2022

Notes:
 ND -- Not Detected
 SS -- Soil Sample

File: N:\GIS\Prj\PO44_001_PESRM-PES\WXDS\AST\Work\Tank_Group_06\ForASTClosureReport\Figure 9 - 028A (GP R 286).mxd, 6/7/2023 Created by: Mia Coordinate System: NAD_1983_StatePlane_Pennsylvania_South_FIPS_3702_Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
	PESRM Soil Sample Location



 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 028A (GP R 286) Figure 9
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	



Photograph 1:

View of cleanup activities at Tank 028A (GP R 286) following demolition.



PES Project Load Ticket

Load Ticket: 20448

Date: 05.05.22

Sold to: Allegheny **Scrap**
Location: Tank 286
Carrier: Allegheny

Non-Haz / ACM / Special Waste

Activity Location: _____

Steel / Ferrous

- No. 1 P+S
- No. 2 Heavy Melt
- Cast Iron
- Mixed
- Pipe
- Light Iron
- Re-Bar
- Other: Tank Plate

Non-Ferrous

- Insulated Copper Wire
- No. 1' Copper Wire
- Brass
- Aluminum
- Stainless, Grade _____
- Other Alloy, Grade _____
- Mixed
- Other: _____

Condition

- Prepared
- Unprepared
- Green Waste
- Concrete
- Masonry
- Mixed Masonry
- Wood Only
- Demo Debris (C&D)
- Dirt / Fill
- Sand Fill
- Crushed Stone
- Other: _____

Scale Ticket #: _____

Gross Weight: 66900 lbs

Tare Weight: 42000 lbs

Net Weight: 24900 lbs

NorthStar Rep. Signature: [Signature]

Received By: [Signature]

Waste Stream

- C&D Demolition Debris
- Non-Friable ACM
- Friable ACM
- PB WWTP Sludge
- GP WWTP Sludge
- Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 -D043)
- Process Haz Waste
- Demo Debris (C&D)
- Non-Haz Waste (Solid)
- Non-Haz Waste (Liquid)
- PCB (Non-TSCA)
- PCB (TSCA)

Disposal Facility: _____

Carrier: _____

Truck #: _____

Container #: _____

Manifest #: _____

Profile / Approval #: _____

Scale Info

Scale Ticket #: _____

Gross Weight: _____

Tare weight: _____

Net weight: _____

Net Kilogram Conversion (PCB Only): _____

NorthStar Rep. Signature: _____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20036311
Date: 05/05/2022 7:40 AM
Phone: () -
Fax: () -

Customer: HILCO
HILCO

Order Number: 001
SCRAP REMOVAL
Tons: 153509.166
Loads: 10028

DT06-103 - ALLEGHENY TRUCK 06 W/TRAILER 103
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: _____

Material	Quantity	Price	Material \$	Delivery \$	Misc \$	Tax \$	Line Total \$
SCRAP	12.45 tn						

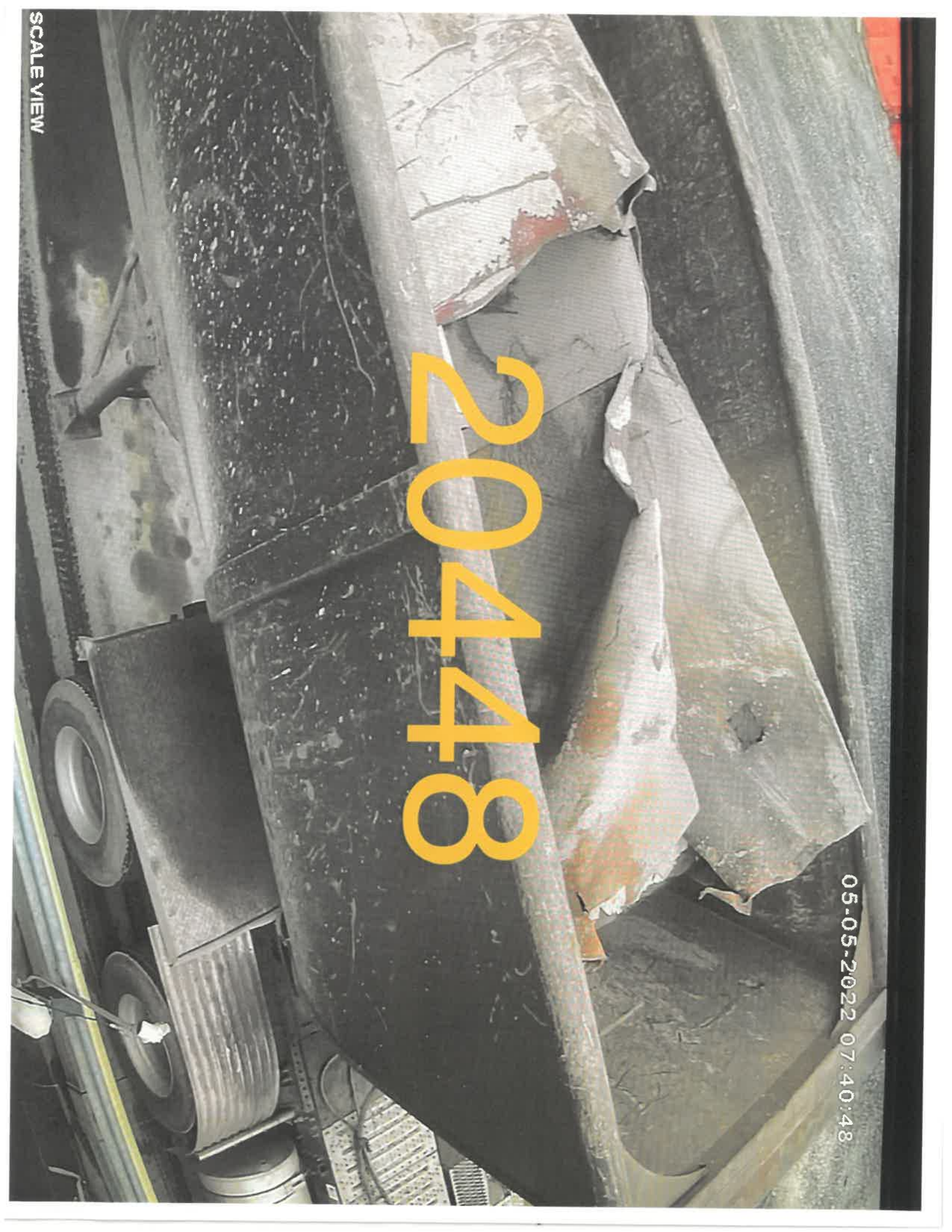
Weight Information

Material	Gross	Tare	Net
SCRAP	66900.00	42000.00	24900.00

05-05-2022 07:40:48

20448

SCALE VIEW



ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 066A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See summary in figure section below							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

Section III

P - Samples placed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: At multiple AST locations, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil and standing water which prevented soil sampling was present in some cases. Because of these physical obstructions, Site Characterization sampling results generated by Evergreen in AOI 7 were used to determine the sources of contamination and to determine the extent of migration of regulated substances in soil and groundwater. As such, figures and tables presenting soil data generated by PESRM for these ASTs (049A, 050A, 066A, 022A, and 003A) have not been attached as the soil has not yet been sampled by PESRM.



Photograph 1:

View of Tank 066A (GP R 973) prior to demolition.



Photograph 2:

View of Tank 066A (GP R 973) being cleaned.



Photograph 3:

View of the interior of Tank 066A (GP R 973) during cleaning.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 050A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

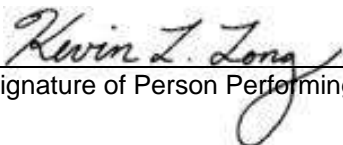
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06/ 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See summary in figure section below							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

Section III

P - Samples placed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: At multiple AST locations, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil and standing water which prevented soil sampling was present in some cases. Because of these physical obstructions, Site Characterization sampling results generated by Evergreen in AOI 7 were used to determine the sources of contamination and to determine the extent of migration of regulated substances in soil and groundwater. As such, figures and tables presenting soil data generated by PESRM for these ASTs (049A, 050A, 066A, 022A, and 003A) have not been attached as the soil has not yet been sampled by PESRM.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 049A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

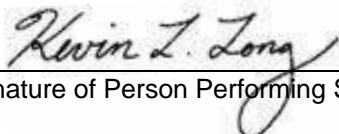
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See summary in figure section below							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /
							/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

Section III

P - Samples placed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: At multiple AST locations, Site Assessment and Site Characterization sampling could not be completed because thick concrete tank foundations prevented access to the underlying soil and standing water which prevented soil sampling was present in some cases. Because of these physical obstructions, Site Characterization sampling results generated by Evergreen in AOI 7 were used to determine the sources of contamination and to determine the extent of migration of regulated substances in soil and groundwater. As such, figures and tables presenting soil data generated by PESRM for these ASTs (049A, 050A, 066A, 022A, and 003A) have not been attached as the soil has not yet been sampled by PESRM.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 011A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33624

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records -----> Do not complete item C.2. below.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

_____ -----> Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

YES -----> Remove or remediate contaminated soil -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

NO -----> Continue Interim Remedial Actions -----> See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

NO -----> Conduct confirmatory sampling -----> See end of this section for options on submission and maintenance of closure records.

YES -----> Report release to DEP within 24 hours -----> Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): _____

Continue with corrective action -----> See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

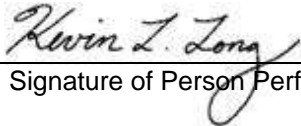
Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the tank system out of service;
- (b) By the current owners and operators of the tank system site; or
- (c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.



Signature of Person Performing Site Assessment

06 / 30 / 2023

Date

Principal Consultant

Title of Person Performing Site Assessment

Terraphase Engineering Inc.

Name of Company Performing Site Assessment

609-236-8171 x93

Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33624

Sample I.D. (See diagram)	Parameter	Analytical Method ¹	Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached summary table						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /
						/ /	/ /

¹ Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:
 P - Samples placed in a soil sample vial with a preservative present.
 E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

Page 10 of 12

Section III

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See attached Figure

Table 2 - 011A (GP R 1047)

Sample/Analysis Information (Attachment for Section III.)

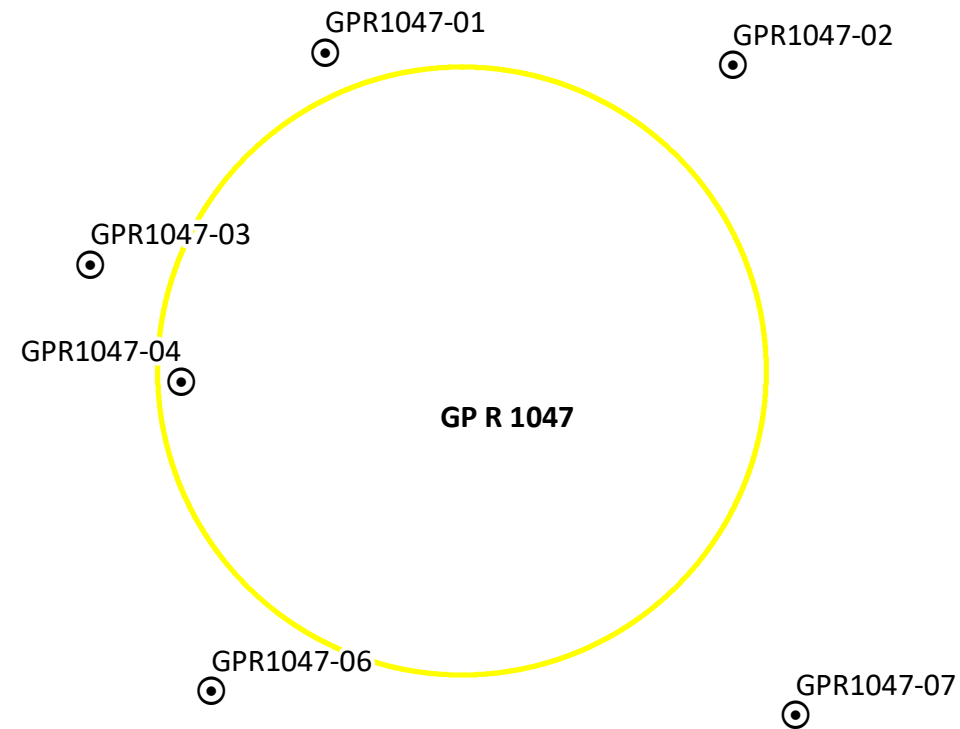
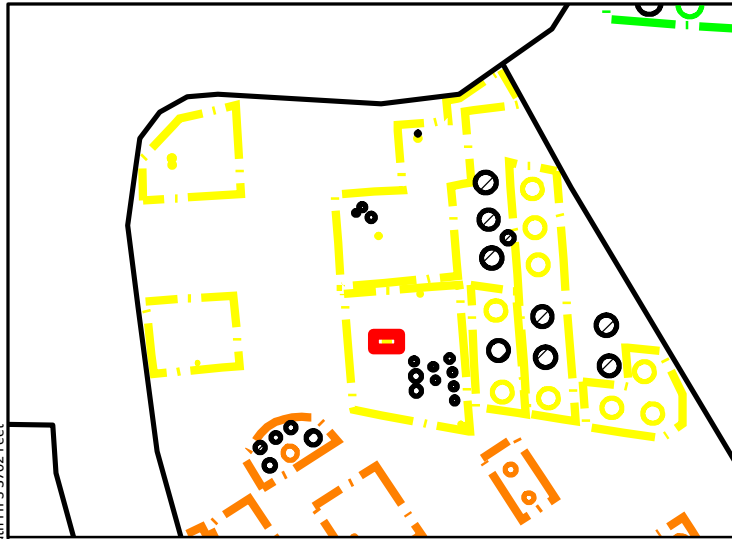
Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
GPR1047-03	DUP-54	4	4.5	pH	SW9045D	Soil	10.7	0	12/8/2022	12/14/2022
GPR1047-01	GPR1047-01-SS01	4.5	5	pH	SW9045D	Soil	8.7	0	12/8/2022	12/14/2022
GPR1047-02	GPR1047-02-SS01	4	4.5	pH	SW9045D	Soil	7.5	0	12/8/2022	12/14/2022
GPR1047-03	GPR1047-03-SS01	4	4.5	pH	SW9045D	Soil	8.7	0	12/8/2022	12/14/2022
GPR1047-04	GPR1047-04-SS01	4.5	5	pH	SW9045D	Soil	8.8	0	12/8/2022	12/14/2022
GPR1047-06	GPR1047-06-SS01	4	4.5	pH	SW9045D	Soil	9	0	12/8/2022	12/14/2022
GPR1047-07	GPR1047-07-SS01	4.5	5	pH	SW9045D	Soil	10.7	0	12/8/2022	12/14/2022

Notes:

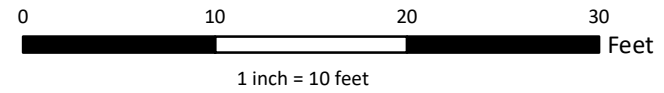
SS -- Soil Sample

-- DUP-54 is a field duplicate associated with sample GPR1047-03-SS01.

File: N:\GIS\PI\PO44_001_PESRM-PES\WXDs\AST_Work\Tank_Group_06\FerASTClosureReport\Figure 2 - 011A (GP R 1047).mxd 6/7/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	PESRM Soil Sample Location



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

Site Location and Sampling Map 011A (GP R 1047)
Figure 2

Laboratory Reports



ANALYTICAL REPORT

Lab Number:	L2268455
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/13/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268455-01	GPR281-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:30	12/06/22
L2268455-02	GPR281-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:45	12/06/22
L2268455-03	GPR281-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:55	12/06/22
L2268455-04	GPR281-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:05	12/06/22
L2268455-05	GPR281-11-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:20	12/06/22
L2268455-06	GPR281-12-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:30	12/06/22
L2268455-07	GPR282-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:30	12/06/22
L2268455-08	GPR282-03-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:40	12/06/22
L2268455-09	GPR282-05-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:50	12/06/22
L2268455-10	GPR282-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:00	12/06/22
L2268455-11	GPR282-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:10	12/06/22
L2268455-12	GPR282-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:20	12/06/22
L2268455-13	GPR282-12-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:30	12/06/22
L2268455-14	GPR284-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 13:30	12/06/22
L2268455-15	GPR284-03-SS01	SOIL	PHILADELPHIA, PA	12/06/22 13:45	12/06/22
L2268455-16	GPR284-05-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:00	12/06/22
L2268455-17	GPR284-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:10	12/06/22
L2268455-18	GPR284-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:20	12/06/22
L2268455-19	GPR284-09-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:30	12/06/22
L2268455-20	GPR284-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:35	12/06/22
L2268455-21	GPR284-11-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:40	12/06/22
L2268455-22	GPR284-13-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:50	12/06/22
L2268455-23	GPR284-14-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:55	12/06/22
L2268455-24	GPR284-15-SS01	SOIL	PHILADELPHIA, PA	12/06/22 15:00	12/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268455-25	DUP-52	SOIL	PHILADELPHIA, PA	12/06/22 11:00	12/06/22
L2268455-26	TB-221206	WATER	PHILADELPHIA, PA	12/06/22 00:00	12/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

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

L2268455-11: The surrogate recovery is outside the acceptance criteria for 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.

L2268455-12: The internal standard (IS) response for fluorobenzene (24%), chlorobenzene-d5 (27%), and 1,4-dichlorobenzene-d4 (27%) and surrogate recoveries for 1,2-dichloroethane-d4 (133%) and dibromofluoromethane (135%) were outside the acceptance criteria. A second low-level vial was analyzed, but no data was acquired due to instrument error. Since the IS response was below method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2268455-16: 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.

L2268455-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (194%); 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.

L2268455-17: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (27%) and the surrogate recoveries for toluene-d8 (131%) and 4-bromofluorobenzene (293%) were outside the acceptance criteria; however, re-analysis achieved the following results: 1,4-dichlorobenzene-d4 (46%) and 4-bromofluorobenzene (196%). The results of both analyses are reported; however, since the IS response was below method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Case Narrative (continued)

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2268455-26, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics

L2268455-06D, -12D, -17D, and -22D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2268455-13: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

Total Metals

The WG1720509-3 MS recovery for lead (13%), performed on L2268455-01, 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: 12/13/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01
 Client ID: GPR281-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 21:33
 Analyst: JIC
 Percent Solids: 68%

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	0.00080	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00087	1
1,2-Dibromoethane	ND		mg/kg	0.00080	0.00047	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0032	0.00090	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	ND		mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.00052	J	mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.0014	J	mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02
 Client ID: GPR281-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 03:48
 Analyst: JIC
 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	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00040	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00081	0.00021	1
Toluene	ND		mg/kg	0.00081	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00040	0.00024	1
Ethylbenzene	ND		mg/kg	0.00081	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00045	1
o-Xylene	0.00084		mg/kg	0.00081	0.00023	1
Xylenes, Total	0.00084		mg/kg	0.00081	0.00023	1
Isopropylbenzene	0.00015	J	mg/kg	0.00081	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.0024		mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03
 Client ID: GPR281-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 21:59
 Analyst: JIC
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00084	1
o-Xylene	ND		mg/kg	0.0015	0.00044	1
Xylenes, Total	ND		mg/kg	0.0015	0.00044	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04
 Client ID: GPR281-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:05
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 22:26
 Analyst: JIC
 Percent Solids: 66%

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	0.00044	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	0.00031	1
p/m-Xylene	ND		mg/kg	0.0044	0.0012	1
o-Xylene	ND		mg/kg	0.0022	0.00064	1
Xylenes, Total	ND		mg/kg	0.0022	0.00064	1
Isopropylbenzene	ND		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0044	0.00042	1
1,2,4-Trimethylbenzene	0.00085	J	mg/kg	0.0044	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05
 Client ID: GPR281-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 22:53
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	0.00037	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	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	0.00021	J	mg/kg	0.0013	0.00018	1
p/m-Xylene	0.0012	J	mg/kg	0.0026	0.00072	1
o-Xylene	0.00064	J	mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0018	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00045	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0012	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06
 Client ID: GPR281-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 23:20
 Analyst: JIC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.00036	J	mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00016	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00038	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07
 Client ID: GPR282-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 23:47
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00065	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00065	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00073	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.00053	J	mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 00:14
 Analyst: JIC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	0.00045	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00045	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0013		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.00085	J	mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09
 Client ID: GPR282-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 00:40
 Analyst: JIC
 Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00090	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	ND		mg/kg	0.0018	0.00097	1
1,2-Dibromoethane	ND		mg/kg	0.00090	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00052	1
Xylenes, Total	ND		mg/kg	0.0018	0.00052	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0036	0.00034	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10
 Client ID: GPR282-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 01:07
 Analyst: JIC
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00090	J	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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:09
 Analyst: NLK
 Percent Solids: 60%

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	0.00039	1
Benzene	ND		mg/kg	0.00098	0.00032	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00050	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.00098	0.00057	1
Ethylbenzene	0.00029	J	mg/kg	0.0020	0.00028	1
p/m-Xylene	0.0017	J	mg/kg	0.0039	0.0011	1
o-Xylene	0.0038		mg/kg	0.0020	0.00057	1
Xylenes, Total	0.0055	J	mg/kg	0.0020	0.00057	1
Isopropylbenzene	0.0017	J	mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	0.0057		mg/kg	0.0039	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	285	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 04:41
 Analyst: JIC
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.30	0.031	1
Benzene	0.094		mg/kg	0.076	0.025	1
1,2-Dichloroethane	ND		mg/kg	0.15	0.039	1
Toluene	0.44		mg/kg	0.15	0.083	1
1,2-Dibromoethane	ND		mg/kg	0.076	0.045	1
Ethylbenzene	0.11	J	mg/kg	0.15	0.021	1
p/m-Xylene	0.30		mg/kg	0.30	0.085	1
o-Xylene	0.12	J	mg/kg	0.15	0.044	1
Xylenes, Total	0.42	J	mg/kg	0.15	0.044	1
Isopropylbenzene	0.072	J	mg/kg	0.15	0.017	1
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.30	0.029	1
1,2,4-Trimethylbenzene	0.22	J	mg/kg	0.30	0.051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:03
 Analyst: NLK
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00095	1
o-Xylene	ND		mg/kg	0.0017	0.00049	1
Xylenes, Total	ND		mg/kg	0.0017	0.00049	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00033	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.00087	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	133	Q	70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	135	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13
 Client ID: GPR282-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 01:33
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00074	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14
 Client ID: GPR284-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 02:00
 Analyst: JIC
 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	0.0031	0.00032	1
Benzene	ND		mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00085	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00088	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	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15
 Client ID: GPR284-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 02:27
 Analyst: JIC
 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	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00068	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00074	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00076	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 05:08
 Analyst: JIC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.023	J	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	0.087		mg/kg	0.058	0.0082	1
p/m-Xylene	0.20		mg/kg	0.12	0.033	1
o-Xylene	0.096		mg/kg	0.058	0.017	1
Xylenes, Total	0.30		mg/kg	0.058	0.017	1
Isopropylbenzene	0.081		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	0.54		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.75		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:36
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	0.0043		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00037	1
Toluene	0.0023		mg/kg	0.0014	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.010		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.025		mg/kg	0.0029	0.00082	1
o-Xylene	0.013		mg/kg	0.0014	0.00042	1
Xylenes, Total	0.038		mg/kg	0.0014	0.00042	1
Isopropylbenzene	0.015		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.11		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.13		mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	194	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/10/22 16:58
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00065	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	0.00073	J	mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00065	0.00038	1
Ethylbenzene	0.00098	J	mg/kg	0.0013	0.00018	1
p/m-Xylene	0.00097	J	mg/kg	0.0026	0.00073	1
o-Xylene	0.0013		mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0023	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.0058		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	293	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17 R
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:42
 Analyst: NLK
 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	0.0031	0.00031	1
Benzene	ND		mg/kg	0.00077	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	ND		mg/kg	0.0015	0.00083	1
1,2-Dibromoethane	ND		mg/kg	0.00077	0.00045	1
Ethylbenzene	0.00047	J	mg/kg	0.0015	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00086	1
o-Xylene	0.0011	J	mg/kg	0.0015	0.00045	1
Xylenes, Total	0.0011	J	mg/kg	0.0015	0.00045	1
Isopropylbenzene	0.0026		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.00054	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	0.00084	J	mg/kg	0.0031	0.00051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	196	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18
 Client ID: GPR284-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:52
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 13:26
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.0013	J	mg/kg	0.0026	0.00074	1
o-Xylene	0.0011	J	mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0024	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.0013		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20
 Client ID: GPR284-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:35
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 13:52
 Analyst: JIC
 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	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0011	J	mg/kg	0.0022	0.00061	1
o-Xylene	0.00086	J	mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0020	J	mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00096	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00059	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21
 Client ID: GPR284-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 14:18
 Analyst: JIC
 Percent Solids: 69%

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
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00037	1
Toluene	ND		mg/kg	0.0014	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00072	0.00042	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.00099	J	mg/kg	0.0029	0.00081	1
o-Xylene	ND		mg/kg	0.0014	0.00042	1
Xylenes, Total	0.00099	J	mg/kg	0.0014	0.00042	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22
 Client ID: GPR284-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 14:44
 Analyst: JIC
 Percent Solids: 57%

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	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	0.0011	J	mg/kg	0.0033	0.00091	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0011	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-23
 Client ID: GPR284-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 15:11
 Analyst: JIC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.00076	J	mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00076	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24
 Client ID: GPR284-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 15:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:57
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00020	J	mg/kg	0.00053	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	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25
 Client ID: DUP-52
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 16:03
 Analyst: JIC
 Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0046	0.00047	1
Benzene	ND		mg/kg	0.0012	0.00039	1
1,2-Dichloroethane	ND		mg/kg	0.0023	0.00060	1
Toluene	ND		mg/kg	0.0023	0.0013	1
1,2-Dibromoethane	ND		mg/kg	0.0012	0.00068	1
Ethylbenzene	ND		mg/kg	0.0023	0.00033	1
p/m-Xylene	ND		mg/kg	0.0046	0.0013	1
o-Xylene	ND		mg/kg	0.0023	0.00068	1
Xylenes, Total	ND		mg/kg	0.0023	0.00068	1
Isopropylbenzene	ND		mg/kg	0.0023	0.00025	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0046	0.00045	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0046	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-26
 Client ID: TB-221206
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 00:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:15
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-26
 Client ID: TB-221206
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 00:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/07/22 19:35
 Analyst: MJV

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	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/07/22 19:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26 Batch: WG1720722-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260D
 Analytical Date: 12/08/22 21:06
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-10,13-15 Batch: WG1721432-5					
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	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/08/22 21:06
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12,16 Batch: WG1721434-5					
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	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 26 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/09/22 09:01
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19-23,25 Batch: WG1722187-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/10/22 11:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17 Batch: WG1722219-5					
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	101		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 13:53
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11-12,16-18,24 Batch: WG1722625-5					
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	96		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

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: WG1720722-3 WG1720722-4								
Methyl tert butyl ether	92		92		63-130	0		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	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	99		100		70-130	1		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	99		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-10,13-15 Batch: WG1721432-3 WG1721432-4								
Methyl tert butyl ether	85		87		66-130	2		30
Benzene	93		93		70-130	0		30
1,2-Dichloroethane	84		86		70-130	2		30
Toluene	96		96		70-130	0		30
1,2-Dibromoethane	90		92		70-130	2		30
Ethylbenzene	95		95		70-130	0		30
p/m-Xylene	97		97		70-130	0		30
o-Xylene	94		93		70-130	1		30
Isopropylbenzene	96		94		70-130	2		30
1,3,5-Trimethylbenzene	95		94		70-130	1		30
1,2,4-Trimethylbenzene	93		92		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,16 Batch: WG1721434-3 WG1721434-4								
Methyl tert butyl ether	85		87		66-130	2		30
Benzene	93		93		70-130	0		30
1,2-Dichloroethane	84		86		70-130	2		30
Toluene	96		96		70-130	0		30
1,2-Dibromoethane	90		92		70-130	2		30
Ethylbenzene	95		95		70-130	0		30
p/m-Xylene	97		97		70-130	0		30
o-Xylene	94		93		70-130	1		30
Isopropylbenzene	96		94		70-130	2		30
1,3,5-Trimethylbenzene	95		94		70-130	1		30
1,2,4-Trimethylbenzene	93		92		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits	<i>Column</i>
Microextractables by GC - Westborough Lab Associated sample(s): 26 Batch: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19-23,25 Batch: WG1722187-3 WG1722187-4								
Methyl tert butyl ether	101		104		66-130	3		30
Benzene	103		101		70-130	2		30
1,2-Dichloroethane	94		94		70-130	0		30
Toluene	101		100		70-130	1		30
1,2-Dibromoethane	99		102		70-130	3		30
Ethylbenzene	108		107		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	95		95		70-130	0		30
Isopropylbenzene	96		94		70-130	2		30
1,3,5-Trimethylbenzene	105		103		70-130	2		30
1,2,4-Trimethylbenzene	105		104		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17 Batch: WG1722219-3 WG1722219-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	106		103		70-130	3		30
1,2-Dichloroethane	95		96		70-130	1		30
Toluene	103		98		70-130	5		30
1,2-Dibromoethane	102		104		70-130	2		30
Ethylbenzene	105		98		70-130	7		30
p/m-Xylene	106		98		70-130	8		30
o-Xylene	105		98		70-130	7		30
Isopropylbenzene	101		94		70-130	7		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		96		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		91		70-130
Toluene-d8	99		101		70-130
4-Bromofluorobenzene	92		89		70-130
Dibromofluoromethane	92		93		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11-12,16-18,24 Batch: WG1722625-3 WG1722625-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	92		92		70-130	0		30
Toluene	91		92		70-130	1		30
1,2-Dibromoethane	97		97		70-130	0		30
Ethylbenzene	92		92		70-130	0		30
p/m-Xylene	98		98		70-130	0		30
o-Xylene	96		95		70-130	1		30
Isopropylbenzene	96		95		70-130	1		30
1,3,5-Trimethylbenzene	95		96		70-130	1		30
1,2,4-Trimethylbenzene	96		95		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	96		95		70-130
4-Bromofluorobenzene	95		93		70-130
Dibromofluoromethane	105		105		70-130



Matrix Spike Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>	<i>Column</i>
Microextractables by GC - Westborough Lab Associated sample(s): 26 QC Batch ID: WG1721462-3 QC Sample: L2268455-26 Client ID: TB-221206													
1,2-Dibromoethane	ND	0.252	0.250	99		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01
 Client ID: GPR281-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 20:37
 Analyst: JG
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.5		mg/kg	0.24	0.029	1
Fluorene	0.20	J	mg/kg	0.24	0.024	1
Phenanthrene	0.71		mg/kg	0.14	0.029	1
Anthracene	0.23		mg/kg	0.14	0.047	1
Pyrene	0.32		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.24		mg/kg	0.14	0.027	1
Chrysene	0.26		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.34		mg/kg	0.14	0.041	1
Benzo(a)pyrene	0.30		mg/kg	0.19	0.059	1
Benzo(ghi)perylene	0.19		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02
 Client ID: GPR281-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:01
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.19	0.023	1
Fluorene	0.14	J	mg/kg	0.19	0.018	1
Phenanthrene	0.33		mg/kg	0.11	0.023	1
Anthracene	0.061	J	mg/kg	0.11	0.037	1
Pyrene	0.38		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.19		mg/kg	0.11	0.021	1
Chrysene	0.55		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.12		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.061	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.044	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03
 Client ID: GPR281-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:25
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.4		mg/kg	0.24	0.029	1
Fluorene	0.21	J	mg/kg	0.24	0.023	1
Phenanthrene	0.70		mg/kg	0.14	0.029	1
Anthracene	0.24		mg/kg	0.14	0.046	1
Pyrene	0.55		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.42		mg/kg	0.14	0.026	1
Chrysene	0.47		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	0.58		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.51		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.32		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04
 Client ID: GPR281-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:05
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:49
 Analyst: JG
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.25	0.031	1
Fluorene	0.52		mg/kg	0.25	0.025	1
Phenanthrene	2.4		mg/kg	0.15	0.031	1
Anthracene	0.79		mg/kg	0.15	0.049	1
Pyrene	2.8		mg/kg	0.15	0.025	1
Benzo(a)anthracene	1.9		mg/kg	0.15	0.028	1
Chrysene	1.9		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	2.0		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.9		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	1.0		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05
 Client ID: GPR281-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 22:13
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.068	J	mg/kg	0.18	0.023	1
Fluorene	0.051	J	mg/kg	0.18	0.018	1
Phenanthrene	0.16		mg/kg	0.11	0.023	1
Anthracene	0.042	J	mg/kg	0.11	0.036	1
Pyrene	0.32		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.11		mg/kg	0.11	0.021	1
Chrysene	0.36		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.17		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.10	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.086	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06 D
 Client ID: GPR281-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:42
 Analyst: MG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.93	0.11	5
Fluorene	0.092	J	mg/kg	0.93	0.090	5
Phenanthrene	0.30	J	mg/kg	0.56	0.11	5
Anthracene	ND		mg/kg	0.56	0.18	5
Pyrene	0.54	J	mg/kg	0.56	0.092	5
Benzo(a)anthracene	0.26	J	mg/kg	0.56	0.10	5
Chrysene	0.64		mg/kg	0.56	0.097	5
Benzo(b)fluoranthene	0.19	J	mg/kg	0.56	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.74	0.23	5
Benzo(ghi)perylene	0.11	J	mg/kg	0.74	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07
 Client ID: GPR282-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:44
 Analyst: JG
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.4		mg/kg	0.21	0.026	1
Fluorene	0.69		mg/kg	0.21	0.020	1
Phenanthrene	4.3		mg/kg	0.12	0.026	1
Anthracene	1.3		mg/kg	0.12	0.041	1
Pyrene	3.8		mg/kg	0.12	0.021	1
Benzo(a)anthracene	2.2		mg/kg	0.12	0.024	1
Chrysene	1.8		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	2.2		mg/kg	0.12	0.035	1
Benzo(a)pyrene	1.8		mg/kg	0.17	0.051	1
Benzo(ghi)perylene	1.0		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:56
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.5		mg/kg	0.20	0.025	1
Fluorene	0.19	J	mg/kg	0.20	0.020	1
Phenanthrene	0.82		mg/kg	0.12	0.025	1
Anthracene	0.34		mg/kg	0.12	0.040	1
Pyrene	0.44		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.30		mg/kg	0.12	0.023	1
Chrysene	0.47		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.38		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.44		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.50		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09
 Client ID: GPR282-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:20
 Analyst: JG
 Percent Solids: 59%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.86		mg/kg	0.28	0.034	1
Fluorene	0.37		mg/kg	0.28	0.027	1
Phenanthrene	2.8		mg/kg	0.16	0.034	1
Anthracene	0.99		mg/kg	0.16	0.054	1
Pyrene	3.0		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.1		mg/kg	0.16	0.031	1
Chrysene	1.8		mg/kg	0.16	0.029	1
Benzo(b)fluoranthene	1.6		mg/kg	0.16	0.046	1
Benzo(a)pyrene	1.5		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	0.88		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10
 Client ID: GPR282-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 04:12
 Analyst: MG
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.2		mg/kg	0.26	0.031	1
Fluorene	0.38		mg/kg	0.26	0.025	1
Phenanthrene	1.7		mg/kg	0.15	0.031	1
Anthracene	0.52		mg/kg	0.15	0.050	1
Pyrene	1.6		mg/kg	0.15	0.025	1
Benzo(a)anthracene	0.96		mg/kg	0.15	0.029	1
Chrysene	1.0		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	1.3		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.2		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	0.71		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 14:32
 Analyst: JG
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7		mg/kg	0.27	0.033	1
Fluorene	1.5		mg/kg	0.27	0.027	1
Phenanthrene	4.5		mg/kg	0.16	0.033	1
Anthracene	1.5		mg/kg	0.16	0.054	1
Pyrene	4.4		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.0		mg/kg	0.16	0.031	1
Chrysene	2.2		mg/kg	0.16	0.028	1
Benzo(b)fluoranthene	2.2		mg/kg	0.16	0.046	1
Benzo(a)pyrene	2.0		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	1.3		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12 D
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 14:56
 Analyst: JG
 Percent Solids: 63%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.3		mg/kg	2.6	0.32	10
Fluorene	8.2		mg/kg	2.6	0.25	10
Phenanthrene	28.		mg/kg	1.6	0.32	10
Anthracene	9.6		mg/kg	1.6	0.51	10
Pyrene	26.		mg/kg	1.6	0.26	10
Benzo(a)anthracene	13.		mg/kg	1.6	0.29	10
Chrysene	12.		mg/kg	1.6	0.27	10
Benzo(b)fluoranthene	14.		mg/kg	1.6	0.44	10
Benzo(a)pyrene	12.		mg/kg	2.1	0.63	10
Benzo(ghi)perylene	5.9		mg/kg	2.1	0.30	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	41		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13
 Client ID: GPR282-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 15:20
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.6		mg/kg	0.58	0.070	1
Fluorene	0.67		mg/kg	0.58	0.056	1
Phenanthrene	2.4		mg/kg	0.35	0.070	1
Anthracene	0.85		mg/kg	0.35	0.11	1
Pyrene	0.81		mg/kg	0.35	0.058	1
Benzo(a)anthracene	0.50		mg/kg	0.35	0.065	1
Chrysene	0.53		mg/kg	0.35	0.060	1
Benzo(b)fluoranthene	0.58		mg/kg	0.35	0.098	1
Benzo(a)pyrene	0.52		mg/kg	0.46	0.14	1
Benzo(ghi)perylene	0.59		mg/kg	0.46	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14
 Client ID: GPR284-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 15:44
 Analyst: JG
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.2		mg/kg	0.22	0.027	1
Fluorene	0.35		mg/kg	0.22	0.021	1
Phenanthrene	1.0		mg/kg	0.13	0.027	1
Anthracene	0.39		mg/kg	0.13	0.043	1
Pyrene	1.9		mg/kg	0.13	0.022	1
Benzo(a)anthracene	1.5		mg/kg	0.13	0.025	1
Chrysene	1.3		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	1.6		mg/kg	0.13	0.037	1
Benzo(a)pyrene	1.4		mg/kg	0.18	0.054	1
Benzo(ghi)perylene	0.64		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15
 Client ID: GPR284-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:08
 Analyst: JG
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.23	0.028	1
Fluorene	0.45		mg/kg	0.23	0.022	1
Phenanthrene	1.4		mg/kg	0.14	0.028	1
Anthracene	0.58		mg/kg	0.14	0.045	1
Pyrene	2.0		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.8		mg/kg	0.14	0.026	1
Chrysene	1.7		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.2		mg/kg	0.14	0.038	1
Benzo(a)pyrene	2.0		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.2		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:32
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.65		mg/kg	0.18	0.023	1
Fluorene	0.35		mg/kg	0.18	0.018	1
Phenanthrene	1.0		mg/kg	0.11	0.022	1
Anthracene	0.18		mg/kg	0.11	0.036	1
Pyrene	0.91		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.41		mg/kg	0.11	0.021	1
Chrysene	1.1		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.45		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.32		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.25		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	58		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17 D
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:56
 Analyst: JG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.93	J	mg/kg	1.1	0.13	5
Fluorene	ND		mg/kg	1.1	0.11	5
Phenanthrene	0.62	J	mg/kg	0.66	0.13	5
Anthracene	ND		mg/kg	0.66	0.21	5
Pyrene	0.42	J	mg/kg	0.66	0.11	5
Benzo(a)anthracene	0.37	J	mg/kg	0.66	0.12	5
Chrysene	0.56	J	mg/kg	0.66	0.11	5
Benzo(b)fluoranthene	0.38	J	mg/kg	0.66	0.18	5
Benzo(a)pyrene	0.29	J	mg/kg	0.88	0.27	5
Benzo(ghi)perylene	0.36	J	mg/kg	0.88	0.13	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18
 Client ID: GPR284-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:21
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.92		mg/kg	0.20	0.024	1
Fluorene	0.25		mg/kg	0.20	0.019	1
Phenanthrene	0.47		mg/kg	0.12	0.024	1
Anthracene	0.25		mg/kg	0.12	0.038	1
Pyrene	1.2		mg/kg	0.12	0.020	1
Benzo(a)anthracene	1.2		mg/kg	0.12	0.022	1
Chrysene	1.0		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	1.2		mg/kg	0.12	0.033	1
Benzo(a)pyrene	1.1		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.48		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	97		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:45
 Analyst: JG
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.2		mg/kg	0.23	0.028	1
Fluorene	0.69		mg/kg	0.23	0.022	1
Phenanthrene	2.3		mg/kg	0.14	0.028	1
Anthracene	0.78		mg/kg	0.14	0.044	1
Pyrene	3.2		mg/kg	0.14	0.022	1
Benzo(a)anthracene	2.8		mg/kg	0.14	0.025	1
Chrysene	2.5		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	3.5		mg/kg	0.14	0.038	1
Benzo(a)pyrene	3.0		mg/kg	0.18	0.055	1
Benzo(ghi)perylene	1.4		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20
 Client ID: GPR284-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:35
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:09
 Analyst: JG
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.2		mg/kg	0.20	0.025	1
Fluorene	0.45		mg/kg	0.20	0.020	1
Phenanthrene	2.3		mg/kg	0.12	0.025	1
Anthracene	0.72		mg/kg	0.12	0.040	1
Pyrene	3.3		mg/kg	0.12	0.020	1
Benzo(a)anthracene	2.8		mg/kg	0.12	0.023	1
Chrysene	2.4		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	3.1		mg/kg	0.12	0.034	1
Benzo(a)pyrene	2.8		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	1.3		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21
 Client ID: GPR284-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:33
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.3		mg/kg	0.24	0.029	1
Fluorene	0.26		mg/kg	0.24	0.023	1
Phenanthrene	1.7		mg/kg	0.14	0.029	1
Anthracene	0.66		mg/kg	0.14	0.047	1
Pyrene	3.8		mg/kg	0.14	0.024	1
Benzo(a)anthracene	3.4		mg/kg	0.14	0.027	1
Chrysene	3.0		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.8		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.2		mg/kg	0.19	0.059	1
Benzo(ghi)perylene	1.6		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	110		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22 D
 Client ID: GPR284-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 17:49
 Analyst: MG
 Percent Solids: 57%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.7		mg/kg	1.4	0.18	5
Fluorene	0.98	J	mg/kg	1.4	0.14	5
Phenanthrene	4.7		mg/kg	0.87	0.18	5
Anthracene	2.7		mg/kg	0.87	0.28	5
Pyrene	23.		mg/kg	0.87	0.14	5
Benzo(a)anthracene	20.		mg/kg	0.87	0.16	5
Chrysene	17.		mg/kg	0.87	0.15	5
Benzo(b)fluoranthene	19.		mg/kg	0.87	0.24	5
Benzo(a)pyrene	17.		mg/kg	1.2	0.35	5
Benzo(ghi)perylene	6.6		mg/kg	1.2	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-23
 Client ID: GPR284-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 19:21
 Analyst: JG
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.8		mg/kg	0.19	0.023	1
Fluorene	0.65		mg/kg	0.19	0.018	1
Phenanthrene	2.7		mg/kg	0.11	0.023	1
Anthracene	0.57		mg/kg	0.11	0.037	1
Pyrene	3.3		mg/kg	0.11	0.019	1
Benzo(a)anthracene	2.5		mg/kg	0.11	0.021	1
Chrysene	2.4		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	2.7		mg/kg	0.11	0.032	1
Benzo(a)pyrene	2.3		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	1.2		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24
 Client ID: GPR284-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 15:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 19:45
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.049	J	mg/kg	0.19	0.023	1
Fluorene	0.038	J	mg/kg	0.19	0.018	1
Phenanthrene	2.0		mg/kg	0.11	0.023	1
Anthracene	0.52		mg/kg	0.11	0.037	1
Pyrene	3.3		mg/kg	0.11	0.019	1
Benzo(a)anthracene	2.4		mg/kg	0.11	0.021	1
Chrysene	2.4		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	2.7		mg/kg	0.11	0.032	1
Benzo(a)pyrene	2.0		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	1.1		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25
 Client ID: DUP-52
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 20:09
 Analyst: JG
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.1		mg/kg	0.23	0.028	1
Fluorene	0.56		mg/kg	0.23	0.023	1
Phenanthrene	1.5		mg/kg	0.14	0.028	1
Anthracene	0.64		mg/kg	0.14	0.045	1
Pyrene	3.2		mg/kg	0.14	0.023	1
Benzo(a)anthracene	2.9		mg/kg	0.14	0.026	1
Chrysene	2.7		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	3.6		mg/kg	0.14	0.039	1
Benzo(a)pyrene	3.3		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	1.5		mg/kg	0.19	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270E
 Analytical Date: 12/08/22 00:56
 Analyst: JG

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10 Batch: WG1720179-1					
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
2-Fluorophenol	75		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	84		30-120
2,4,6-Tribromophenol	91		10-136
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/08/22 10:56
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 11-25 Batch: WG1720590-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	91		30-120
4-Terphenyl-d14	91		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

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 Batch: WG1720179-2 WG1720179-3								
Naphthalene	61		58		40-140	5		50
Fluorene	56		56		40-140	0		50
Phenanthrene	59		58		40-140	2		50
Anthracene	62		60		40-140	3		50
Pyrene	60		57		35-142	5		50
Benzo(a)anthracene	57		58		40-140	2		50
Chrysene	54		54		40-140	0		50
Benzo(b)fluoranthene	55		56		40-140	2		50
Benzo(a)pyrene	57		60		40-140	5		50
Benzo(ghi)perylene	60		59		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	62		58		25-120
Phenol-d6	63		59		10-120
Nitrobenzene-d5	54		53		23-120
2-Fluorobiphenyl	66		64		30-120
2,4,6-Tribromophenol	69		70		10-136
4-Terphenyl-d14	58		61		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 11-25 Batch: WG1720590-2 WG1720590-3								
Naphthalene	79		77		40-140	3		50
Fluorene	83		80		40-140	4		50
Phenanthrene	77		74		40-140	4		50
Anthracene	80		77		40-140	4		50
Pyrene	83		84		35-142	1		50
Benzo(a)anthracene	84		80		40-140	5		50
Chrysene	81		78		40-140	4		50
Benzo(b)fluoranthene	91		89		40-140	2		50
Benzo(a)pyrene	89		88		40-140	1		50
Benzo(ghi)perylene	84		80		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	110		108		23-120
2-Fluorobiphenyl	91		86		30-120
4-Terphenyl-d14	83		84		18-120



METALS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01
 Client ID: GPR281-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:30
 Date Received: 12/06/22
 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	284		mg/kg	2.80	0.150	1	12/07/22 20:26	12/08/22 11:07	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02
 Client ID: GPR281-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	33.7		mg/kg	2.22	0.119	1	12/07/22 20:26	12/08/22 10:52	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03

Date Collected: 12/06/22 09:55

Client ID: GPR281-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	206		mg/kg	2.79	0.150	1	12/07/22 20:26	12/08/22 10:57	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04
 Client ID: GPR281-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:05
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	363		mg/kg	2.98	0.160	1	12/07/22 20:26	12/08/22 11:02	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05

Date Collected: 12/06/22 10:20

Client ID: GPR281-11-SS01

Date Received: 12/06/22

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	24.4		mg/kg	2.24	0.120	1	12/07/22 20:26	12/08/22 11:40	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06

Date Collected: 12/06/22 10:30

Client ID: GPR281-12-SS01

Date Received: 12/06/22

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	162		mg/kg	11.2	0.598	5	12/07/22 20:26	12/12/22 11:39	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07

Date Collected: 12/06/22 11:30

Client ID: GPR282-01-SS01

Date Received: 12/06/22

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	1520		mg/kg	2.42	0.130	1	12/07/22 20:26	12/08/22 11:51	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 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	184		mg/kg	2.44	0.131	1	12/07/22 20:26	12/08/22 11:56	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09

Date Collected: 12/06/22 11:50

Client ID: GPR282-05-SS01

Date Received: 12/06/22

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	412		mg/kg	3.28	0.176	1	12/07/22 20:26	12/08/22 12:01	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10

Date Collected: 12/06/22 12:00

Client ID: GPR282-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	493		mg/kg	3.06	0.164	1	12/07/22 20:26	12/08/22 12:06	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	343		mg/kg	3.21	0.172	1	12/07/22 20:26	12/08/22 12:10	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12

Date Collected: 12/06/22 12:20

Client ID: GPR282-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	411		mg/kg	3.09	0.166	1	12/07/22 20:26	12/08/22 13:49	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13
 Client ID: GPR282-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:30
 Date Received: 12/06/22
 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	295		mg/kg	2.46	0.132	1	12/07/22 20:26	12/08/22 13:55	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14

Date Collected: 12/06/22 13:30

Client ID: GPR284-01-SS01

Date Received: 12/06/22

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	112		mg/kg	2.64	0.142	1	12/07/22 20:26	12/08/22 13:59	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15

Date Collected: 12/06/22 13:45

Client ID: GPR284-03-SS01

Date Received: 12/06/22

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	63.3		mg/kg	2.62	0.140	1	12/07/22 20:26	12/08/22 13:14	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16

Date Collected: 12/06/22 14:00

Client ID: GPR284-05-SS01

Date Received: 12/06/22

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	125		mg/kg	2.26	0.121	1	12/07/22 20:26	12/08/22 13:19	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17

Date Collected: 12/06/22 14:10

Client ID: GPR284-07-SS01

Date Received: 12/06/22

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	186		mg/kg	2.59	0.139	1	12/07/22 20:26	12/08/22 13:24	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18

Date Collected: 12/06/22 14:20

Client ID: GPR284-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	92.5		mg/kg	2.29	0.123	1	12/07/22 20:26	12/08/22 13:29	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 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	89.5		mg/kg	2.71	0.145	1	12/07/22 20:26	12/08/22 13:34	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20

Date Collected: 12/06/22 14:35

Client ID: GPR284-10-SS01

Date Received: 12/06/22

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	95.3		mg/kg	2.33	0.125	1	12/07/22 20:26	12/08/22 13:39	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21

Date Collected: 12/06/22 14:40

Client ID: GPR284-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	59.1		mg/kg	2.80	0.150	1	12/08/22 06:10	12/08/22 13:46	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22

Date Collected: 12/06/22 14:50

Client ID: GPR284-13-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	87.6		mg/kg	3.38	0.181	1	12/08/22 06:10	12/08/22 14:41	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-23

Date Collected: 12/06/22 14:55

Client ID: GPR284-14-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	30.1		mg/kg	2.16	0.116	1	12/08/22 06:10	12/08/22 14:46	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24

Date Collected: 12/06/22 15:00

Client ID: GPR284-15-SS01

Date Received: 12/06/22

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	5090		mg/kg	2.22	0.119	1	12/08/22 06:10	12/08/22 14:50	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25

Date Collected: 12/06/22 11:00

Client ID: DUP-52

Date Received: 12/06/22

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	69.8		mg/kg	2.72	0.146	1	12/08/22 06:10	12/08/22 14:55	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1720509-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/07/22 20:26	12/08/22 10:43	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-25 Batch: WG1720681-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/08/22 06:10	12/08/22 13:24	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1720509-2 SRM Lot Number: D116-540								
Lead, Total	100		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 21-25 Batch: WG1720681-2 SRM Lot Number: D116-540								
Lead, Total	95		-		83-117	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1720509-3 QC Sample: L2268455-01 Client ID: GPR281-01-SS01												
Lead, Total	284	60.8	292	13	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-25 QC Batch ID: WG1720681-3 QC Sample: L2268455-21 Client ID: GPR284-11-SS01												
Lead, Total	59.1	59.7	118	99		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1720509-4 QC Sample: L2268455-01 Client ID: GPR281-01-SS01						
Lead, Total	284	281	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 21-25 QC Batch ID: WG1720681-4 QC Sample: L2268455-21 Client ID: GPR284-11-SS01						
Lead, Total	59.1	66.2	mg/kg	11		20



INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-01

Date Collected: 12/06/22 09:30

Client ID: GPR281-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.3		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-02

Date Collected: 12/06/22 09:45

Client ID: GPR281-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03

Date Collected: 12/06/22 09:55

Client ID: GPR281-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.1		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-04

Date Collected: 12/06/22 10:05

Client ID: GPR281-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	65.6		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05

Date Collected: 12/06/22 10:20

Client ID: GPR281-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06

Date Collected: 12/06/22 10:30

Client ID: GPR281-12-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07

Date Collected: 12/06/22 11:30

Client ID: GPR282-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
Client ID: GPR282-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09

Date Collected: 12/06/22 11:50

Client ID: GPR282-05-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58.5		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10

Date Collected: 12/06/22 12:00

Client ID: GPR282-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	64.3		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-11

Date Collected: 12/06/22 12:10

Client ID: GPR282-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.1		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-12

Date Collected: 12/06/22 12:20

Client ID: GPR282-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	63.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13

Date Collected: 12/06/22 12:30

Client ID: GPR282-12-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-14

Date Collected: 12/06/22 13:30

Client ID: GPR284-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.9		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-15

Date Collected: 12/06/22 13:45

Client ID: GPR284-03-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-16

Date Collected: 12/06/22 14:00

Client ID: GPR284-05-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17

Date Collected: 12/06/22 14:10

Client ID: GPR284-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18

Date Collected: 12/06/22 14:20

Client ID: GPR284-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19

Date Collected: 12/06/22 14:30

Client ID: GPR284-09-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.5		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20

Date Collected: 12/06/22 14:35

Client ID: GPR284-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21

Date Collected: 12/06/22 14:40

Client ID: GPR284-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.8		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-22

Date Collected: 12/06/22 14:50

Client ID: GPR284-13-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	57.4		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-23

Date Collected: 12/06/22 14:55

Client ID: GPR284-14-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-24

Date Collected: 12/06/22 15:00

Client ID: GPR284-15-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25
Client ID: DUP-52
Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:00
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1720705-1 QC Sample: L2268455-01 Client ID: GPR281-01-SS01						
Solids, Total	68.3	64.8	%	5		20
General Chemistry - Westborough Lab Associated sample(s): 14-25 QC Batch ID: WG1720706-1 QC Sample: L2268455-14 Client ID: GPR284-01-SS01						
Solids, Total	74.9	75.0	%	0		20



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**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(*)
L2268455-01A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-01B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-01C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-01D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-01F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-02A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-02B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-02C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-02D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-02F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-03A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-03B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-03C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-03D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-03F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-04A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-04B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-04C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-04D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12132215:37
Lab Number: L2268455
Report Date: 12/13/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-04F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-05A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-05B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-05C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-05D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-05F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-06A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-06B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-06C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-06D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-06F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-07A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-07B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-07C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-07D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-07F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-08A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-08B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-08C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-08D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-08F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-09A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-09B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-09C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-09D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-09F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-10A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-10B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-10C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-10D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-10F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-11A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-11B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-11C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-11D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-11F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-12A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268455-12B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-12C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-12D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-12F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-13A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-13B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-13C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-13D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-13F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-14A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-14B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-14C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-14D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-14F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-15A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-15B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-15C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-15D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-15F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-16A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268455-16B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-16C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-16D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-16F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-17A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-17B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-17C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-17D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-17F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-18A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-18B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-18C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-18D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12132215:37
Lab Number: L2268455
Report Date: 12/13/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-18E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-18F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-19A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-19B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-19C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-19D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-19E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-19F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-20A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-20B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-20C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-20D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-20F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-21A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-21B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-21C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-21D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-21F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-22A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-22B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-22C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-22D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-22F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-23A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-23B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-23C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-23D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-23F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-24A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-24B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-24C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-24D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-24E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-24F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-25A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-25B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-25C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-25D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-25E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-25F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-26A	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2268455-26B	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2268455-26C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2268455-26D	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

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 of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ALPHA Lab ID (Lab Use Only) Sample ID Collection Date Time Sample Matrix Sampler's Initials

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Time	Sample Matrix	Sampler's Initials
68455-01	G-PR291-01-SS01	12/06	0930	S	TS
-02	G-PR291-07-SS01		0945		
-03	G-PR291-08-SS01		0955		
-04	G-PR291-10-SS01		1005		
-05	G-PR291-11-SS01		1020		
-06	G-PR291-12-SS01		1030		
-07	G-PR292-01-SS01		1130		
-08	G-PR292-03-SS01		1140		
-09	G-PR292-05-SS01		1150		
-10	G-PR292-07-SS01		1200		

Container Type G G G - - - - - - - - - -
 Preservative F A A - - - - - - - - -

Relinquished By: *[Signature]* Date/Time: 12/6/22 0935
 Received By: *[Signature]* Date/Time: 12/6/22 1535

Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: ~~12101~~ ~~1783~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

Date Rec'd in Lab: 12/6/22 ALPHA Job #: L2268455

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 3562
 ADEx Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

VOCs (8260)	SVOCs (8270)	Lead	Other Analytes												SAMPLE HANDLING	TOTAL # BOTTLES	
			1	2	3	4	5	6	7	8	9	10	11	12			
<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"/>	4
<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"/>	2
<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"/>	4
<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"/>	2
<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"/>	4
<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"/>	2
<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"/>	4
<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"/>	4
<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"/>	2

SAMPLE HANDLING
 Filtration
 Done
 Lab to do
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 2 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~18559~~ 18559

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 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@terrphase.com, William.Schmidt@ransomenv.com, and jjeray@hlicoglobal.com

Date Rec'd in Lab: 12/6/22

ALPHA Job #: 12268485

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	Other Analytes										TOTAL # BOTTLES		
		Date	Time						1	2	3	4	5	6	7	8	9	10			
68455 -11	GPR 282-08-5501	12/6	1210	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"/>	4
-12	GPR 282-10-5501		1220			<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"/>	2
-13	GPR 282-12-5501		1230			<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"/>	4
-14	GPR 284-01-5501		1330			<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"/>	2
-15	GPR 284-03-5501		1345			<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"/>	4
-16	GPR 284-05-5501		1400			<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"/>	2
-17	GPR 284-07-5501		1410			<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"/>	4
-18	GPR 284-08-5501		1420			<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"/>	2
-19	GPR 284-09-5501		1430			<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"/>	4
-20	GPR 284-10-5501		1435			<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"/>	2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
68455 -11	GPR 282-08-5501	12/6	1210	S	TS
-12	GPR 282-10-5501		1220		
-13	GPR 282-12-5501		1230		
-14	GPR 284-01-5501		1330		
-15	GPR 284-03-5501		1345		
-16	GPR 284-05-5501		1400		
-17	GPR 284-07-5501		1410		
-18	GPR 284-08-5501		1420		
-19	GPR 284-09-5501		1430		
-20	GPR 284-10-5501		1435		

Container Type

Preservative

G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.

12/17/22
 0135
 12/17/22 0135

W. Schmidt AAL 12/6/22 12:00
 D. Poljanec AAL 12/6/22 12:00
 12.6.22 12:00



CHAIN OF CUSTODY

PAGE 3 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1855~~ ~~1855~~ 18559

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 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: 12/6/22

ALPHA Job #: L2268455

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											TOTAL # BOTTLES		
		Date	Time																		
68455-21	GPR 284-11-5501	12/6	1440	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"/>	4
-22	GPR 284-13-5501		1450	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"/>	2
-23	GPR 284-14-5501		1455	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"/>	4
-24	GPR 284-15-5501		1500	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"/>	2
25	DUP-5Z		-	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"/>	4
26	TB-221206			W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

SAMPLE HANDLING
Filtration
 Done
 Not Needed
 Lab to do
Preservation
 Lab to do
(Please specify below)

Sample Specific Comments

Container Type
Preservative

G G G - - - - -
F A A - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/12/22 1505	<i>[Signature]</i>	12/6/22 1505
<i>[Signature]</i>	12/14/22/800	<i>[Signature]</i>	6/18/00
<i>[Signature]</i>	6/2/01	<i>[Signature]</i>	12-6-2020

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.

PADEP Short List Analytical Suites per Table III-5:

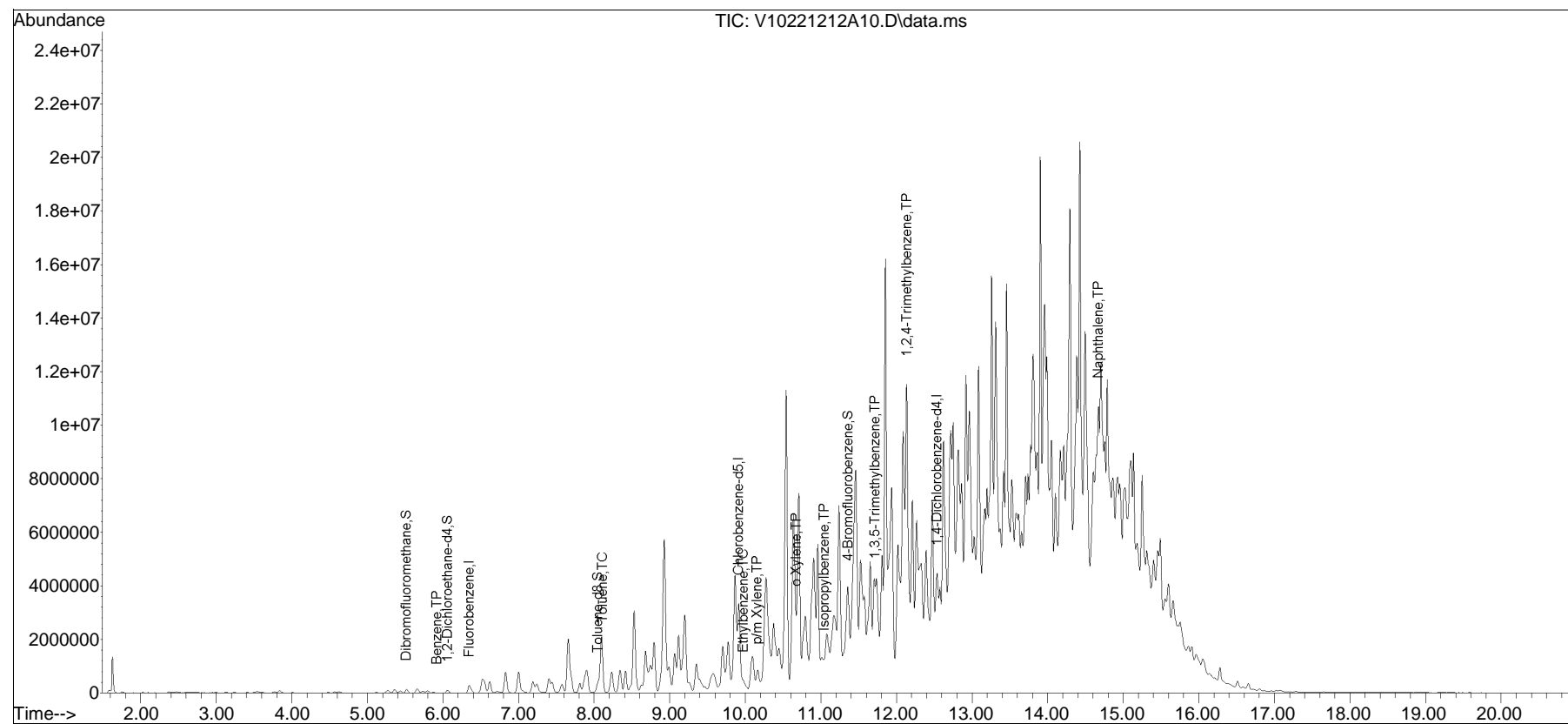
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221212A\
 Data File : V10221212A10.D
 Acq On : 12 Dec 2022 4:09 pm
 Operator : VOA110:NLK
 Sample : L2268455-11,31,4.26,5,,C,R2F
 Misc : WG1722625,ICAL19281
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 13 08:48:23 2022
 Quant Method : I:\VOLATILES\VOA110\2022\221212A\V110_220822N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Aug 23 09:34:28 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V10221212A01.D•

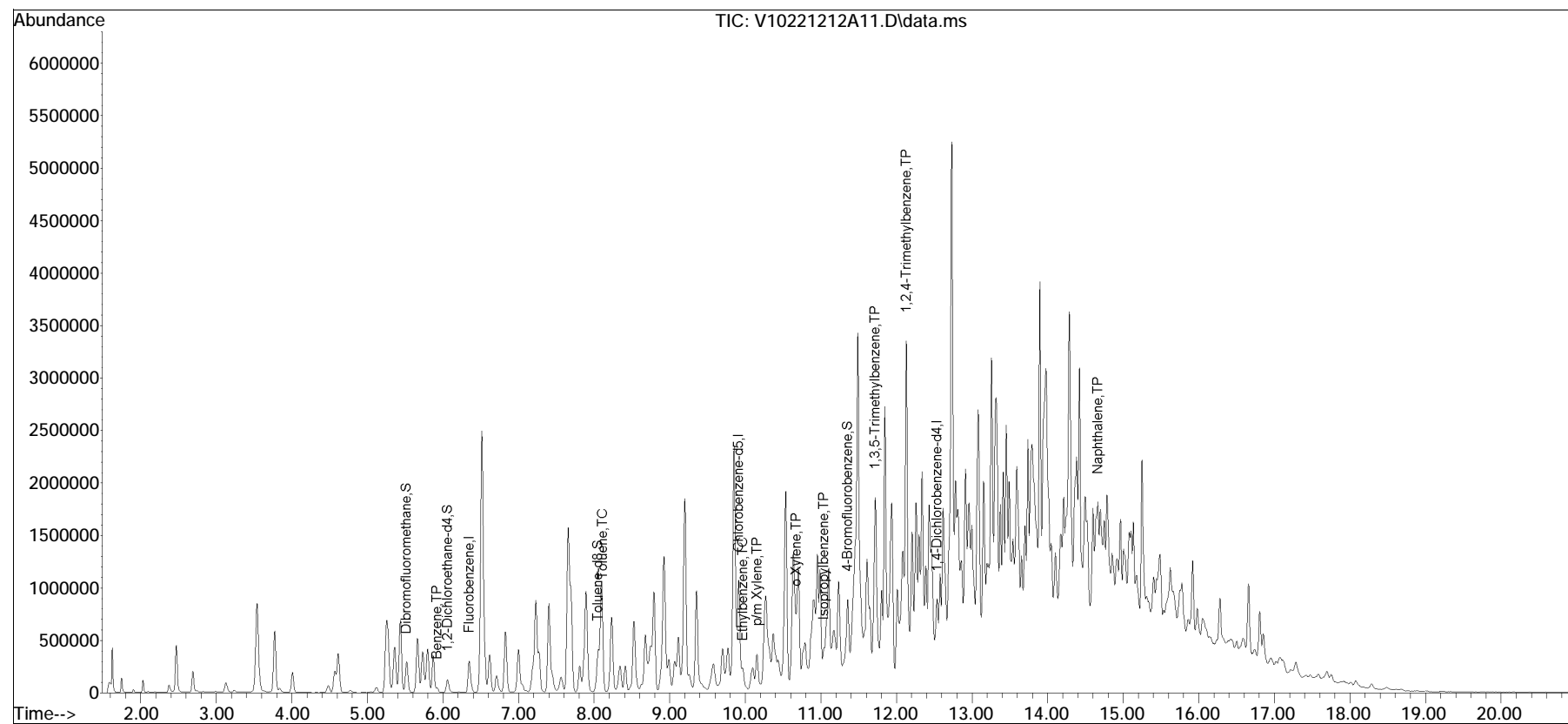


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221212A\
Data File : V10221212A11.D
Acq On : 12 Dec 2022 4:36 pm
Operator : VOA110:NLK
Sample : L2268455-16,31,3.95,5,,C,R2F
Misc : WG1722625,ICAL19281
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 13 08:48:45 2022
Quant Method : I:\VOLATILES\VOA110\2022\221212A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V10221212A01.D•





ANALYTICAL REPORT

Lab Number:	L2268803
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/14/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268803-01	GPR276-01-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:00	12/07/22
L2268803-02	GPR276-03-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:10	12/07/22
L2268803-03	GPR276-05-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:15	12/07/22
L2268803-04	GPR276-06-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:30	12/07/22
L2268803-05	GPR276-07-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:40	12/07/22
L2268803-06	GPR276-11-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:50	12/07/22
L2268803-07	GPR276-12-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:00	12/07/22
L2268803-08	GPR276-13-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:15	12/07/22
L2268803-09	GPR276-15-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:30	12/07/22
L2268803-10	GPR276-16-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:40	12/07/22
L2268803-11	GPR276-17-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:00	12/07/22
L2268803-12	GPR285-01-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:10	12/07/22
L2268803-13	GPR285-02-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:20	12/07/22
L2268803-14	GPR285-03-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:30	12/07/22
L2268803-15	GPR285-07-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:40	12/07/22
L2268803-16	GPR285-08-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:50	12/07/22
L2268803-17	GPR285-11-SS01	SOIL	PHILADELPHIA, PA	12/07/22 14:00	12/07/22
L2268803-18	GPR285-13-SS01	SOIL	PHILADELPHIA, PA	12/07/22 14:10	12/07/22
L2268803-19	DUP-53	SOIL	PHILADELPHIA, PA	12/07/22 00:00	12/07/22
L2268803-20	FB-221207-1	WATER	PHILADELPHIA, PA	12/07/22 12:00	12/07/22
L2268803-21	FB-221207-2	WATER	PHILADELPHIA, PA	12/07/22 14:10	12/07/22
L2268803-22	TB-221207	WATER	PHILADELPHIA, PA	12/07/22 00:00	12/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

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

L2268803-01: 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.

L2268803-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (139%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-02: 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.

L2268803-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-09 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.

L2268803-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (159%); 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.

L2268803-10: The surrogate recovery is outside the method acceptance criteria for and dibromofluoromethane (50%) due to interference with the Internal Standard.

L2268803-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (138%) and 4-bromofluorobenzene (1010%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative (continued)

L2268803-11: 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.

L2268803-12: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (64%) due to interference with the Internal Standard.

L2268803-18D2: The surrogate recovery is outside the acceptance criteria for 1,2-dichloroethane-d4 (133%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-18D2: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (60%) due to interference with the Internal Standard.

L2268803-18D2: The internal standard (IS) response for fluorobenzene (221%) was above 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.

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2268803-20 through -22, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics by SIM

The WG1721171-1 Method Blank, associated with L2268803-20 and -21, has a concentration above the reporting limit for Benzo(a)anthracene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

Total Metals

L2268803-20: The Field Blank has a result for lead present above the reporting limit. The sample was verified

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative (continued)

as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

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: 12/14/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 09:54
 Analyst: NLK
 Percent Solids: 60%

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	1
Benzene	0.040	J	mg/kg	0.064	0.021	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	1
Toluene	0.68		mg/kg	0.13	0.069	1
1,2-Dibromoethane	ND		mg/kg	0.064	0.037	1
Ethylbenzene	0.060	J	mg/kg	0.13	0.018	1
p/m-Xylene	0.11	J	mg/kg	0.25	0.071	1
o-Xylene	0.050	J	mg/kg	0.13	0.037	1
Xylenes, Total	0.16	J	mg/kg	0.13	0.037	1
Isopropylbenzene	0.10	J	mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.25	0.024	1
1,2,4-Trimethylbenzene	0.076	J	mg/kg	0.25	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 21:53
 Analyst: NLK
 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	0.23	0.023	1
Benzene	0.96		mg/kg	0.056	0.019	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	1
Toluene	1.4		mg/kg	0.11	0.061	1
1,2-Dibromoethane	ND		mg/kg	0.056	0.033	1
Ethylbenzene	0.51		mg/kg	0.11	0.016	1
p/m-Xylene	1.3		mg/kg	0.23	0.063	1
o-Xylene	0.47		mg/kg	0.11	0.033	1
Xylenes, Total	1.8		mg/kg	0.11	0.033	1
Isopropylbenzene	1.1		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.30		mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.77		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 16:45
 Analyst: AJK
 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	0.0034	0.00034	1
Benzene	0.00040	J	mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0010	J	mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00050	1
Ethylbenzene	0.00026	J	mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0011	J	mg/kg	0.0034	0.00095	1
o-Xylene	0.0016	J	mg/kg	0.0017	0.00049	1
Xylenes, Total	0.0027	J	mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.031		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0021	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.0019	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 10:40
 Analyst: NLK
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0038	0.00038	1
Benzene	ND		mg/kg	0.00095	0.00032	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00049	1
Toluene	ND		mg/kg	0.0019	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00095	0.00056	1
Ethylbenzene	ND		mg/kg	0.0019	0.00027	1
p/m-Xylene	ND		mg/kg	0.0038	0.0011	1
o-Xylene	ND		mg/kg	0.0019	0.00055	1
Xylenes, Total	ND		mg/kg	0.0019	0.00055	1
Isopropylbenzene	ND		mg/kg	0.0019	0.00021	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0038	0.00037	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0038	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04
 Client ID: GPR276-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:03
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.00027	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0039		mg/kg	0.0022	0.00062	1
o-Xylene	0.0013		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0052		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00047	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0067		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0033		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05
 Client ID: GPR276-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:26
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	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	0.00051	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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06
 Client ID: GPR276-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:49
 Analyst: NLK
 Percent Solids: 64%

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	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00093	1
o-Xylene	0.00062	J	mg/kg	0.0016	0.00048	1
Xylenes, Total	0.00062	J	mg/kg	0.0016	0.00048	1
Isopropylbenzene	0.00046	J	mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	0.00063	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.0022	J	mg/kg	0.0033	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	182	Q	70-130
Dibromofluoromethane	116		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 22:15
 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	ND		mg/kg	0.28	0.028	1
Benzene	7.9		mg/kg	0.070	0.023	1
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	1
Toluene	4.8		mg/kg	0.14	0.076	1
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	1
Ethylbenzene	4.2		mg/kg	0.14	0.020	1
p/m-Xylene	11.		mg/kg	0.28	0.078	1
o-Xylene	0.72		mg/kg	0.14	0.040	1
Xylenes, Total	12.		mg/kg	0.14	0.040	1
Isopropylbenzene	1.4		mg/kg	0.14	0.015	1
1,3,5-Trimethylbenzene	0.90		mg/kg	0.28	0.027	1
1,2,4-Trimethylbenzene	2.8		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 12:35
 Analyst: NLK
 Percent Solids: 66%

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	ND		mg/kg	0.0032	0.00091	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	ND		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	106		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09
 Client ID: GPR276-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 22:38
 Analyst: NLK
 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	0.11	0.011	1
Benzene	0.083		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	0.037	J	mg/kg	0.056	0.014	1
Toluene	0.27		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.087		mg/kg	0.056	0.0078	1
p/m-Xylene	0.36		mg/kg	0.11	0.031	1
o-Xylene	0.041	J	mg/kg	0.056	0.016	1
Xylenes, Total	0.40	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.26		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.066	J	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	159	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 23:24
 Analyst: NLK
 Percent Solids: 68%

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	0.014		mg/kg	0.00090	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	0.013		mg/kg	0.0018	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00090	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.033		mg/kg	0.0036	0.0010	1
o-Xylene	0.011		mg/kg	0.0018	0.00052	1
Xylenes, Total	0.044		mg/kg	0.0018	0.00052	1
Isopropylbenzene	0.26		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	0.013		mg/kg	0.0036	0.00035	1
1,2,4-Trimethylbenzene	0.024		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	138	Q	70-130
4-Bromofluorobenzene	1010	Q	70-130
Dibromofluoromethane	50	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11
 Client ID: GPR276-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 23:01
 Analyst: NLK
 Percent Solids: 64%

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	0.17		mg/kg	0.059	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.030	1
Toluene	1.0		mg/kg	0.12	0.064	1
1,2-Dibromoethane	ND		mg/kg	0.059	0.035	1
Ethylbenzene	0.32		mg/kg	0.12	0.017	1
p/m-Xylene	1.2		mg/kg	0.24	0.066	1
o-Xylene	0.37		mg/kg	0.12	0.034	1
Xylenes, Total	1.6		mg/kg	0.12	0.034	1
Isopropylbenzene	1.4		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.31		mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.99		mg/kg	0.24	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 03:15
 Analyst: JIC
 Percent Solids: 71%

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	4.0		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	12.		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	7.4		mg/kg	0.11	0.015	1
p/m-Xylene	21.		mg/kg	0.22	0.061	1
o-Xylene	6.4		mg/kg	0.11	0.032	1
Xylenes, Total	27.		mg/kg	0.11	0.032	1
Isopropylbenzene	4.1		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	30.		mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	28.		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13
 Client ID: GPR285-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:20
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:30
 Analyst: JIC
 Percent Solids: 69%

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	0.00026	J	mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00084	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	0.00036	J	mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00087	1
o-Xylene	ND		mg/kg	0.0016	0.00045	1
Xylenes, Total	ND		mg/kg	0.0016	0.00045	1
Isopropylbenzene	0.00021	J	mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.00077	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	0.00063	J	mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14
 Client ID: GPR285-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:52
 Analyst: JIC
 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	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D2
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 17:13
 Analyst: AJK
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.88	0.089	5
Benzene	12.		mg/kg	0.22	0.073	5
1,2-Dichloroethane	ND		mg/kg	0.44	0.11	5
Toluene	17.		mg/kg	0.44	0.24	5
1,2-Dibromoethane	ND		mg/kg	0.22	0.13	5
Ethylbenzene	51.		mg/kg	0.44	0.062	5
p/m-Xylene	88.		mg/kg	0.88	0.25	5
o-Xylene	6.5		mg/kg	0.44	0.13	5
Xylenes, Total	94.		mg/kg	0.44	0.13	5
Isopropylbenzene	18.		mg/kg	0.44	0.048	5
1,3,5-Trimethylbenzene	120		mg/kg	0.88	0.085	5
1,2,4-Trimethylbenzene	240	E	mg/kg	0.88	0.15	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:15
 Analyst: JIC
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

1,2,4-Trimethylbenzene	210		mg/kg	3.5	0.59	20
------------------------	-----	--	-------	-----	------	----

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16
 Client ID: GPR285-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:38
 Analyst: JIC
 Percent Solids: 71%

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17
 Client ID: GPR285-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:01
 Analyst: JIC
 Percent Solids: 69%

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	0.00080	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00087	1
1,2-Dibromoethane	ND		mg/kg	0.00080	0.00047	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	108		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D2
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 17:40
 Analyst: AJK
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.42	0.043	2
Benzene	1.1		mg/kg	0.11	0.035	2
1,2-Dichloroethane	ND		mg/kg	0.21	0.054	2
Toluene	6.9		mg/kg	0.21	0.12	2
1,2-Dibromoethane	ND		mg/kg	0.11	0.062	2
Ethylbenzene	23.		mg/kg	0.21	0.030	2
p/m-Xylene	34.		mg/kg	0.42	0.12	2
o-Xylene	5.0		mg/kg	0.21	0.062	2
Xylenes, Total	39.		mg/kg	0.21	0.062	2
Isopropylbenzene	12.		mg/kg	0.21	0.023	2
1,3,5-Trimethylbenzene	89.	E	mg/kg	0.42	0.041	2
1,2,4-Trimethylbenzene	94.	E	mg/kg	0.42	0.071	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	133	Q	70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	60	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:24
 Analyst: JIC
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,3,5-Trimethylbenzene	80.		mg/kg	4.2	0.41	20
1,2,4-Trimethylbenzene	80.		mg/kg	4.2	0.71	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19
 Client ID: DUP-53
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:47
 Analyst: JIC
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	ND		mg/kg	0.00086	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00094	1
1,2-Dibromoethane	ND		mg/kg	0.00086	0.00051	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0035	0.00097	1
o-Xylene	ND		mg/kg	0.0017	0.00050	1
Xylenes, Total	ND		mg/kg	0.0017	0.00050	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0035	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:26
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 09:30
 Analyst: MJV

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	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:37
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 09:50
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-22
 Client ID: TB-221207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:48
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-22
 Client ID: TB-221207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 10:10
 Analyst: MJV

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	105		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 20-22 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 12/12/22 20:21
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,07,09,11 Batch: WG1722648-5					
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	108		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 20:21
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1722651-5					
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	107		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 09:31
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-06,08,13-14,16-17,19 Batch: WG1722682-5					
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	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 09:31
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,15,18 Batch: WG1722683-5					
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	108		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/09/22 09:10
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 20-22 Batch: WG1722693-5					
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	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 10:51
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1722945-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:51
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15,18 Batch: WG1722950-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 18:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1723094-5					
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	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

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: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,07,09,11 Batch: WG1722648-3 WG1722648-4								
Methyl tert butyl ether	91		91		66-130	0		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		87		70-130	1		30
Toluene	90		88		70-130	2		30
1,2-Dibromoethane	83		84		70-130	1		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		85		70-130	6		30
o-Xylene	88		83		70-130	6		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	93		89		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	103		102		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	109		110		70-130
Dibromofluoromethane	97		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1722651-3 WG1722651-4								
Methyl tert butyl ether	91		91		66-130	0		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		87		70-130	1		30
Toluene	90		88		70-130	2		30
1,2-Dibromoethane	83		84		70-130	1		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		85		70-130	6		30
o-Xylene	88		83		70-130	6		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	93		89		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		102		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	109		110		70-130
Dibromofluoromethane	97		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-06,08,13-14,16-17,19 Batch: WG1722682-3 WG1722682-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	86		86		70-130	0		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	92		88		70-130	4		30
1,2-Dibromoethane	89		87		70-130	2		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	98		90		70-130	9		30
1,3,5-Trimethylbenzene	98		92		70-130	6		30
1,2,4-Trimethylbenzene	96		89		70-130	8		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	111		107		70-130
4-Bromofluorobenzene	113		110		70-130
Dibromofluoromethane	98		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,15,18 Batch: WG1722683-3 WG1722683-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	86		86		70-130	0		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	92		88		70-130	4		30
1,2-Dibromoethane	89		87		70-130	2		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	98		90		70-130	9		30
1,3,5-Trimethylbenzene	98		92		70-130	6		30
1,2,4-Trimethylbenzene	96		89		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	111		107		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	98		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 20-22 Batch: WG1722693-3 WG1722693-4								
Methyl tert butyl ether	95		95		63-130	0		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	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	99		100		70-130	1		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	105		105		70-130
Dibromofluoromethane	101		101		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1722945-3 WG1722945-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	92		91		70-130
Dibromofluoromethane	109		106		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15,18 Batch: WG1722950-3 WG1722950-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	109		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1723094-3 WG1723094-4								
Methyl tert butyl ether	99		100		66-130	1		30
Benzene	97		100		70-130	3		30
1,2-Dichloroethane	98		99		70-130	1		30
Toluene	89		92		70-130	3		30
1,2-Dibromoethane	93		95		70-130	2		30
Ethylbenzene	92		94		70-130	2		30
p/m-Xylene	91		93		70-130	2		30
o-Xylene	92		95		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	87		90		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	98		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	99		99		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:10
 Analyst: CMM
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	12.	E	mg/kg	0.28	0.033	1
Fluorene	3.0		mg/kg	0.28	0.027	1
Phenanthrene	5.5		mg/kg	0.16	0.033	1
Anthracene	2.8		mg/kg	0.16	0.054	1
Pyrene	7.0		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.3		mg/kg	0.16	0.031	1
Chrysene	3.5		mg/kg	0.16	0.029	1
Benzo(a)pyrene	2.6		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	1.3		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01 D
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:51
 Analyst: CMM
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.4	0.17	5
Benzo(b)fluoranthene	2.7		mg/kg	0.82	0.23	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:15
 Analyst: CMM
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.3		mg/kg	0.23	0.028	1
Fluorene	0.20	J	mg/kg	0.23	0.022	1
Phenanthrene	0.72		mg/kg	0.14	0.028	1
Anthracene	0.28		mg/kg	0.14	0.044	1
Pyrene	1.1		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.68		mg/kg	0.14	0.026	1
Chrysene	0.64		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.0		mg/kg	0.14	0.038	1
Benzo(a)pyrene	0.88		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	0.68		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:49
 Analyst: CMM
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.	E	mg/kg	0.24	0.030	1
Fluorene	0.93		mg/kg	0.24	0.024	1
Phenanthrene	3.9		mg/kg	0.15	0.030	1
Anthracene	1.1		mg/kg	0.15	0.048	1
Pyrene	2.5		mg/kg	0.15	0.024	1
Benzo(a)anthracene	1.5		mg/kg	0.15	0.027	1
Chrysene	1.5		mg/kg	0.15	0.025	1
Benzo(b)fluoranthene	1.8		mg/kg	0.15	0.041	1
Benzo(a)pyrene	1.7		mg/kg	0.20	0.060	1
Benzo(ghi)perylene	0.99		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03 D
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:27
 Analyst: CMM
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	16.		mg/kg	1.2	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04
 Client ID: GPR276-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:32
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.0		mg/kg	0.19	0.023	1
Fluorene	0.20		mg/kg	0.19	0.018	1
Phenanthrene	0.96		mg/kg	0.11	0.023	1
Anthracene	0.27		mg/kg	0.11	0.037	1
Pyrene	0.76		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.49		mg/kg	0.11	0.021	1
Chrysene	0.44		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.57		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.51		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.28		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05
 Client ID: GPR276-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 01:05
 Analyst: CMM
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.38		mg/kg	0.18	0.022	1
Fluorene	0.71		mg/kg	0.18	0.018	1
Phenanthrene	4.6		mg/kg	0.11	0.022	1
Anthracene	1.4		mg/kg	0.11	0.035	1
Pyrene	3.6		mg/kg	0.11	0.018	1
Benzo(a)anthracene	2.2		mg/kg	0.11	0.020	1
Chrysene	1.9		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	2.2		mg/kg	0.11	0.030	1
Benzo(a)pyrene	1.9		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.86		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06
 Client ID: GPR276-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:18
 Analyst: CMM
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.9		mg/kg	0.26	0.031	1
Fluorene	0.49		mg/kg	0.26	0.025	1
Phenanthrene	2.7		mg/kg	0.15	0.031	1
Anthracene	0.85		mg/kg	0.15	0.050	1
Pyrene	2.6		mg/kg	0.15	0.025	1
Benzo(a)anthracene	1.8		mg/kg	0.15	0.029	1
Chrysene	1.7		mg/kg	0.15	0.027	1
Benzo(b)fluoranthene	2.4		mg/kg	0.15	0.043	1
Benzo(a)pyrene	2.2		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	1.5		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:36
 Analyst: CMM
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.2		mg/kg	0.21	0.026	1
Fluorene	0.40		mg/kg	0.21	0.021	1
Phenanthrene	3.0		mg/kg	0.13	0.026	1
Anthracene	1.4		mg/kg	0.13	0.042	1
Pyrene	8.0		mg/kg	0.13	0.021	1
Benzo(a)anthracene	9.8	E	mg/kg	0.13	0.024	1
Chrysene	7.2		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	13.	E	mg/kg	0.13	0.036	1
Benzo(a)pyrene	12.	E	mg/kg	0.17	0.052	1
Benzo(ghi)perylene	5.4		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	82		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07 D
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:03
 Analyst: CMM
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Semivolatile Organics by GC/MS - Westborough Lab						
--	--	--	--	--	--	--

Benzo(a)anthracene	8.5		mg/kg	0.64	0.12	5
Benzo(b)fluoranthene	10.		mg/kg	0.64	0.18	5
Benzo(a)pyrene	9.2		mg/kg	0.86	0.26	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:53
 Analyst: CMM
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	17.	E	mg/kg	0.25	0.030	1
Fluorene	0.79		mg/kg	0.25	0.024	1
Phenanthrene	4.0		mg/kg	0.15	0.030	1
Anthracene	1.4		mg/kg	0.15	0.049	1
Pyrene	3.9		mg/kg	0.15	0.025	1
Benzo(a)anthracene	2.9		mg/kg	0.15	0.028	1
Chrysene	3.0		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	4.4		mg/kg	0.15	0.042	1
Benzo(a)pyrene	4.0		mg/kg	0.20	0.061	1
Benzo(ghi)perylene	2.6		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08 D
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 14:39
 Analyst: CMM
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.2	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09
 Client ID: GPR276-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 23:58
 Analyst: CMM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.8		mg/kg	0.18	0.022	1
Fluorene	0.13	J	mg/kg	0.18	0.018	1
Phenanthrene	0.73		mg/kg	0.11	0.022	1
Anthracene	0.17		mg/kg	0.11	0.036	1
Pyrene	0.64		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.35		mg/kg	0.11	0.021	1
Chrysene	0.37		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.47		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.38		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.22		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10 D2
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 22:11
 Analyst: LJG
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	150		mg/kg	2.9	0.59	20
Pyrene	160		mg/kg	2.9	0.48	20
Benzo(a)anthracene	55.		mg/kg	2.9	0.54	20
Chrysene	60.		mg/kg	2.9	0.50	20
Benzo(b)fluoranthene	56.		mg/kg	2.9	0.81	20
Benzo(a)pyrene	59.		mg/kg	3.9	1.2	20
Benzo(ghi)perylene	45.		mg/kg	3.9	0.57	20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10 D
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 14:15
 Analyst: CMM
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.4		mg/kg	0.48	0.059	2
Fluorene	18.		mg/kg	0.48	0.047	2
Phenanthrene	70.	E	mg/kg	0.29	0.059	2
Anthracene	16.		mg/kg	0.29	0.094	2
Pyrene	77.	E	mg/kg	0.29	0.048	2
Benzo(a)anthracene	30.	E	mg/kg	0.29	0.054	2
Chrysene	28.	E	mg/kg	0.29	0.050	2
Benzo(b)fluoranthene	26.	E	mg/kg	0.29	0.081	2
Benzo(a)pyrene	27.	E	mg/kg	0.39	0.12	2
Benzo(ghi)perylene	21.	E	mg/kg	0.39	0.057	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11
 Client ID: GPR276-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:27
 Analyst: CMM
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	8.0		mg/kg	0.26	0.031	1
Fluorene	0.68		mg/kg	0.26	0.025	1
Phenanthrene	2.6		mg/kg	0.16	0.031	1
Anthracene	0.96		mg/kg	0.16	0.050	1
Pyrene	1.7		mg/kg	0.16	0.026	1
Benzo(a)anthracene	1.1		mg/kg	0.16	0.029	1
Chrysene	1.2		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	1.9		mg/kg	0.16	0.044	1
Benzo(a)pyrene	1.8		mg/kg	0.21	0.063	1
Benzo(ghi)perylene	1.4		mg/kg	0.21	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:43
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.	E	mg/kg	0.23	0.028	1
Fluorene	0.68		mg/kg	0.23	0.022	1
Phenanthrene	2.1		mg/kg	0.14	0.028	1
Anthracene	0.71		mg/kg	0.14	0.045	1
Pyrene	1.6		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.4		mg/kg	0.14	0.026	1
Chrysene	1.4		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.5		mg/kg	0.14	0.039	1
Benzo(a)pyrene	2.3		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.7		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12 D
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 13:27
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13
 Client ID: GPR285-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:20
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:00
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.1		mg/kg	0.24	0.029	1
Fluorene	0.30		mg/kg	0.24	0.023	1
Phenanthrene	1.7		mg/kg	0.14	0.029	1
Anthracene	0.70		mg/kg	0.14	0.047	1
Pyrene	2.0		mg/kg	0.14	0.024	1
Benzo(a)anthracene	2.2		mg/kg	0.14	0.027	1
Chrysene	2.0		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.5		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.2		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.8		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14
 Client ID: GPR285-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:17
 Analyst: CMM
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.1		mg/kg	0.23	0.028	1
Fluorene	0.26		mg/kg	0.23	0.022	1
Phenanthrene	1.6		mg/kg	0.14	0.028	1
Anthracene	0.68		mg/kg	0.14	0.044	1
Pyrene	1.6		mg/kg	0.14	0.022	1
Benzo(a)anthracene	1.2		mg/kg	0.14	0.026	1
Chrysene	1.3		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.0		mg/kg	0.14	0.038	1
Benzo(a)pyrene	1.8		mg/kg	0.18	0.055	1
Benzo(ghi)perylene	1.4		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	92		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:34
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	16.	E	mg/kg	0.24	0.029	1
Fluorene	0.81		mg/kg	0.24	0.023	1
Phenanthrene	2.7		mg/kg	0.14	0.029	1
Anthracene	0.59		mg/kg	0.14	0.046	1
Pyrene	0.83		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.41		mg/kg	0.14	0.027	1
Chrysene	0.47		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	0.59		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.40		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.33		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	87		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 13:03
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16
 Client ID: GPR285-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:51
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.0		mg/kg	0.23	0.028	1
Fluorene	0.38		mg/kg	0.23	0.022	1
Phenanthrene	1.5		mg/kg	0.14	0.028	1
Anthracene	0.50		mg/kg	0.14	0.045	1
Pyrene	1.2		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.2		mg/kg	0.14	0.026	1
Chrysene	1.2		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.8		mg/kg	0.14	0.039	1
Benzo(a)pyrene	1.8		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.0		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	79		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17
 Client ID: GPR285-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:08
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.6		mg/kg	0.24	0.029	1
Fluorene	0.40		mg/kg	0.24	0.023	1
Phenanthrene	2.5		mg/kg	0.14	0.029	1
Anthracene	0.77		mg/kg	0.14	0.047	1
Pyrene	2.0		mg/kg	0.14	0.024	1
Benzo(a)anthracene	1.6		mg/kg	0.14	0.027	1
Chrysene	1.4		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	2.0		mg/kg	0.14	0.040	1
Benzo(a)pyrene	1.9		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.2		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	38		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:24
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.	E	mg/kg	0.23	0.028	1
Fluorene	1.1		mg/kg	0.23	0.023	1
Phenanthrene	7.3		mg/kg	0.14	0.028	1
Anthracene	2.0		mg/kg	0.14	0.046	1
Pyrene	6.8		mg/kg	0.14	0.023	1
Benzo(a)anthracene	4.9		mg/kg	0.14	0.026	1
Chrysene	4.4		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	5.8		mg/kg	0.14	0.039	1
Benzo(a)pyrene	4.9		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	4.5		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 12:38
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19
 Client ID: DUP-53
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:41
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.9		mg/kg	0.24	0.029	1
Fluorene	0.41		mg/kg	0.24	0.023	1
Phenanthrene	2.0		mg/kg	0.14	0.029	1
Anthracene	0.80		mg/kg	0.14	0.046	1
Pyrene	1.4		mg/kg	0.14	0.024	1
Benzo(a)anthracene	1.9		mg/kg	0.14	0.027	1
Chrysene	1.8		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.0		mg/kg	0.14	0.040	1
Benzo(a)pyrene	2.7		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.6		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	44		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/09/22 16:01
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/09/22 00:04

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	88		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	94		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/09/22 16:17
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/09/22 00:04

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	96		23-120
2-Fluorobiphenyl	74		15-120
4-Terphenyl-d14	87		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/09/22 21:48
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-19 Batch: WG1721167-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM
Analytical Date: 12/09/22 14:57
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/09/22 00:04

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 20-21 Batch: WG1721171-1					
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	0.35		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	89		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	93		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-19 Batch: WG1721167-2 WG1721167-3								
Naphthalene	63		70		40-140	11		50
Fluorene	62		70		40-140	12		50
Phenanthrene	59		66		40-140	11		50
Anthracene	60		68		40-140	13		50
Pyrene	62		72		35-142	15		50
Benzo(a)anthracene	62		70		40-140	12		50
Chrysene	60		68		40-140	13		50
Benzo(b)fluoranthene	64		72		40-140	12		50
Benzo(a)pyrene	66		75		40-140	13		50
Benzo(ghi)perylene	60		69		40-140	14		50

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Nitrobenzene-d5	85		98		23-120
2-Fluorobiphenyl	66		72		30-120
4-Terphenyl-d14	61		68		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 20-21 Batch: WG1721171-2 WG1721171-3								
Naphthalene	59		65		40-140	10		40
Fluorene	68		71		40-140	4		40
Phenanthrene	70		71		40-140	1		40
Anthracene	75		78		40-140	4		40
Pyrene	80		79		26-127	1		40
Benzo(a)anthracene	83		82		40-140	1		40
Chrysene	74		75		40-140	1		40
Benzo(b)fluoranthene	83		84		40-140	1		40
Benzo(a)pyrene	87		85		40-140	2		40
Benzo(ghi)perylene	83		85		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		91		23-120
2-Fluorobiphenyl	63		70		15-120
4-Terphenyl-d14	86		85		41-149



METALS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01

Date Collected: 12/07/22 10:00

Client ID: GPR276-01-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	475		mg/kg	3.17	0.170	1	12/09/22 09:50	12/09/22 22:51	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02

Date Collected: 12/07/22 10:10

Client ID: GPR276-03-SS01

Date Received: 12/07/22

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	84.6		mg/kg	2.73	0.146	1	12/09/22 09:50	12/09/22 22:55	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03

Date Collected: 12/07/22 10:15

Client ID: GPR276-05-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	198		mg/kg	2.83	0.152	1	12/09/22 09:50	12/09/22 23:00	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04

Date Collected: 12/07/22 10:30

Client ID: GPR276-06-SS01

Date Received: 12/07/22

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	82.9		mg/kg	2.26	0.121	1	12/09/22 09:50	12/10/22 10:11	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05

Date Collected: 12/07/22 10:40

Client ID: GPR276-07-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	896		mg/kg	2.17	0.116	1	12/09/22 09:50	12/10/22 10:14	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06
 Client ID: GPR276-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	397		mg/kg	3.03	0.162	1	12/09/22 09:50	12/10/22 10:18	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07

Date Collected: 12/07/22 11:00

Client ID: GPR276-12-SS01

Date Received: 12/07/22

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	131		mg/kg	2.58	0.138	1	12/09/22 09:50	12/10/22 10:21	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	167		mg/kg	2.84	0.152	1	12/09/22 09:50	12/10/22 10:25	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09
 Client ID: GPR276-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:30
 Date Received: 12/07/22
 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	7.08		mg/kg	2.13	0.114	1	12/09/22 09:50	12/10/22 10:28	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10

Date Collected: 12/07/22 11:40

Client ID: GPR276-16-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

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	284		mg/kg	2.91	0.156	1	12/09/22 09:50	12/10/22 10:31	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11
 Client ID: GPR276-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	383		mg/kg	2.95	0.158	1	12/09/22 09:50	12/10/22 10:35	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12

Date Collected: 12/07/22 13:10

Client ID: GPR285-01-SS01

Date Received: 12/07/22

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	255		mg/kg	2.76	0.148	1	12/09/22 09:50	12/10/22 10:38	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13

Date Collected: 12/07/22 13:20

Client ID: GPR285-02-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	80.6		mg/kg	2.82	0.151	1	12/09/22 09:50	12/10/22 10:42	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14
 Client ID: GPR285-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:30
 Date Received: 12/07/22
 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	296		mg/kg	2.67	0.143	1	12/09/22 09:50	12/10/22 10:59	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15

Date Collected: 12/07/22 13:40

Client ID: GPR285-07-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	287		mg/kg	2.80	0.150	1	12/09/22 09:50	12/10/22 11:03	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16

Date Collected: 12/07/22 13:50

Client ID: GPR285-08-SS01

Date Received: 12/07/22

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	160		mg/kg	2.76	0.148	1	12/09/22 09:50	12/10/22 11:06	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17

Date Collected: 12/07/22 14:00

Client ID: GPR285-11-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	113		mg/kg	2.84	0.152	1	12/09/22 09:50	12/10/22 11:09	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18

Date Collected: 12/07/22 14:10

Client ID: GPR285-13-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	129		mg/kg	2.78	0.149	1	12/09/22 09:50	12/10/22 11:13	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19

Date Collected: 12/07/22 00:00

Client ID: DUP-53

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	212		mg/kg	2.83	0.152	1	12/09/22 09:50	12/10/22 11:16	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20

Date Collected: 12/07/22 12:00

Client ID: FB-221207-1

Date Received: 12/07/22

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	18.21		ug/l	1.000	0.3430	1	12/09/22 09:35	12/13/22 22:52	EPA 3005A	1,6020B	WKP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21

Date Collected: 12/07/22 14:10

Client ID: FB-221207-2

Date Received: 12/07/22

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	0.9214	J	ug/l	1.000	0.3430	1	12/09/22 09:35	12/13/22 22:57	EPA 3005A	1,6020B	WKP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

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): 01-19 Batch: WG1721218-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/09/22 09:50	12/09/22 22:42	1,6010D	MRC

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): 20-21 Batch: WG1721257-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/09/22 09:35	12/09/22 13:17	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 Batch: WG1721218-2 SRM Lot Number: D116-540								
Lead, Total	101		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 20-21 Batch: WG1721257-2								
Lead, Total	104		-		80-120	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

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): 01-19 QC Batch ID: WG1721218-3 QC Sample: L2268385-06 Client ID: MS Sample												
Lead, Total	4.57	82.8	80.3	91		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1721257-3 QC Sample: L2268797-01 Client ID: MS Sample												
Lead, Total	0.5591J	530	500.1	94		-	-		75-125	-		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01

Date Collected: 12/07/22 10:00

Client ID: GPR276-01-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.2		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-02

Date Collected: 12/07/22 10:10

Client ID: GPR276-03-SS01

Date Received: 12/07/22

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	72.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03

Date Collected: 12/07/22 10:15

Client ID: GPR276-05-SS01

Date Received: 12/07/22

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	67.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-04

Date Collected: 12/07/22 10:30

Client ID: GPR276-06-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05

Date Collected: 12/07/22 10:40

Client ID: GPR276-07-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-06

Date Collected: 12/07/22 10:50

Client ID: GPR276-11-SS01

Date Received: 12/07/22

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	63.8		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-07

Date Collected: 12/07/22 11:00

Client ID: GPR276-12-SS01

Date Received: 12/07/22

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	76.3		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08

Date Collected: 12/07/22 11:15

Client ID: GPR276-13-SS01

Date Received: 12/07/22

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	66.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09

Date Collected: 12/07/22 11:30

Client ID: GPR276-15-SS01

Date Received: 12/07/22

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	89.2		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10
Client ID: GPR276-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
Date Received: 12/07/22
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	67.6		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-11

Date Collected: 12/07/22 13:00

Client ID: GPR276-17-SS01

Date Received: 12/07/22

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	64.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12

Date Collected: 12/07/22 13:10

Client ID: GPR285-01-SS01

Date Received: 12/07/22

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	71.3		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-13

Date Collected: 12/07/22 13:20

Client ID: GPR285-02-SS01

Date Received: 12/07/22

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	68.6		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-14

Date Collected: 12/07/22 13:30

Client ID: GPR285-03-SS01

Date Received: 12/07/22

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	73.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-15

Date Collected: 12/07/22 13:40

Client ID: GPR285-07-SS01

Date Received: 12/07/22

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	69.7		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16

Date Collected: 12/07/22 13:50

Client ID: GPR285-08-SS01

Date Received: 12/07/22

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	70.7		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17

Date Collected: 12/07/22 14:00

Client ID: GPR285-11-SS01

Date Received: 12/07/22

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	68.5		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-18

Date Collected: 12/07/22 14:10

Client ID: GPR285-13-SS01

Date Received: 12/07/22

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	69.9		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-19

Date Collected: 12/07/22 00:00

Client ID: DUP-53

Date Received: 12/07/22

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	68.8		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16 QC Batch ID: WG1721482-1 QC Sample: L2268803-01 Client ID: GPR276-01-SS01						
Solids, Total	60.2	58.9	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 17-19 QC Batch ID: WG1721555-1 QC Sample: L2268350-01 Client ID: DUP Sample						
Solids, Total	86.7	84.7	%	2		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-01A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-01B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-01C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-01D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-01F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-02A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268803-02B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260H(14),PA-8260HLW(14)
L2268803-02C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260H(14),PA-8260HLW(14)
L2268803-02D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-02F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-03A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-03B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-03C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-03D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-03F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-04A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-04B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-04C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-04D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-04E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-04F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-05A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-05B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-05C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-05D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-05E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-05F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-06A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-06B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-06C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-06D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-06E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-06F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-07A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-07B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-07C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-07D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-07E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-07F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-08A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-08B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-08C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-08D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-08F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-09A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-09B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-09C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-09D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-09E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-09F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-10A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-10B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-10C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-10D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-10F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-11A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-11B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-11C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-11D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-11F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-12A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-12B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-12C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-12D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-12F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-13A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-13B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-13C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-13D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-13F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-14A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-14B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-14C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-14D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-14F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-15A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-15B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-15C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-15D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-15F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-16A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-16B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-16C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-16D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-16F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-17A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-17B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-17C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-17D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-17F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-18A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-18B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-18C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-18D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-18F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-19A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-19B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-19C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-19D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-19E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-19F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-20A	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20B	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20C	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20D	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-20E	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-20F	Plastic 250ml HNO3 preserved	B	<2	<2	3.7	Y	Absent		PB-6020T-PPB(180)
L2268803-20G	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-20H	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-20I	Plastic 120ml unpreserved	B	7	7	3.7	Y	Absent		ARCHIVE()
L2268803-21A	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21B	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21C	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21D	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-21E	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-21F	Plastic 250ml HNO3 preserved	B	<2	<2	3.7	Y	Absent		PB-6020T-PPB(180)
L2268803-21G	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-21H	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-21I	Plastic 120ml unpreserved	B	7	7	3.7	Y	Absent		ARCHIVE()
L2268803-22A	Vial HCl preserved	A	NA		3.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Serial_No:12142213:35

Lab Number: L2268803

Report Date: 12/14/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-22B	Vial HCl preserved	A	NA		3.3	Y	Absent		PA-8260(14)
L2268803-22C	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		8011(14)
L2268803-22D	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-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 #: 200.00125.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1781~~ ~~1783~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to add@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlctglobal.com

Client Information
 Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

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: 12/8/22 ALPHA Job #: L2269403

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEx Add'l Deliverables

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 (8060)	SVOCs (8270)	Lead											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																			
68803.01	GPR276-01-5501	12/7	1000	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"/>	10
02	GPR276-03-5501		1010			<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"/>	
03	GPR276-05-5501		1015			<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"/>	
04	GPR276-06-5501		1030			<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"/>	
05	GPR276-07-5501		1040			<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"/>	
06	GPR276-11-5501		1050			<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"/>	
07	GPR276-12-5501		1100			<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"/>	
08	GPR276-13-5501		1115			<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"/>	
09	GPR276-15-5501		1130			<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"/>	
10	GPR276-16-5501		1140			<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"/>	

Container Type: G G G - - - - -
 Preservative: P A A - - - - -

Relinquished By: *[Signature]* Date/Time: 12/7/22 8:00
 Received By: *[Signature]* Date/Time: 12/7/22 15:00

9/2/2022
12/10/22
0150
12/13/22 0150

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA 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 #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1201~~ ~~1703~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 12/8/12

ALPHA Job #: L2264803

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

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
<u>[4803.]</u>	<u>GPR276-17-SS01</u>	<u>12/7</u>	<u>1300</u>	<u>S</u>	<u>TS</u>
<u>12</u>	<u>GPR285-01-SS01</u>		<u>1310</u>		
<u>13</u>	<u>GPR285-02-SS01</u>		<u>1320</u>		
<u>14</u>	<u>GPR285-03-SS01</u>		<u>1330</u>		
<u>15</u>	<u>GPR285-07-SS01</u>		<u>1340</u>		
<u>16</u>	<u>GPR285-08-SS01</u>		<u>1350</u>		
<u>17</u>	<u>GPR285-11-SS01</u>		<u>1400</u>		
<u>18</u>	<u>GPR285-13-SS01</u>		<u>1410</u>		
<u>19</u>	<u>DUP-53</u>		<u>-</u>		

ANALYSIS

VOCs (8260)	SVOCs (8270)	Lead	Other Analytes												
			1	2	3	4	5	6	7	8	9	10	11	12	
<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 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 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 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 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 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 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 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"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

[Handwritten Signature]

CONTAINER 12/8/12 0150 12/8/22 0150	Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-
	Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-
Relinquished By: <i>[Signature]</i>	Date/Time	12/7	Received By: <i>[Signature]</i>	Date/Time	12/7/22 1550										
<i>[Signature]</i>	12/7/22 90	<i>[Signature]</i>	12-7-10	<i>[Signature]</i>	12-7-22 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.

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: _____
 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

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~12101~~ ~~12103~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

Date Rec'd in Lab: 12/8/22

ALPHA Job #: 2264803

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													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																													
64803 20	FB-221207-1	12/7	1200	W	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12/8/22								
21	FB-221207-2	↓	1410	W	↓	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		12/8/22							
	FB-221207	↓	-	W	↓	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			12/8/22						
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12/8/22								
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		12/8/22							
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				12/8/22					
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					12/8/22				
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						12/8/22			
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							12/8/22		
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								12/8/22	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									12/8/22
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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>	12/7	<i>[Signature]</i>	12/7/22 15:58
<i>[Signature]</i>	12/7/22	<i>[Signature]</i>	12/7/22
<i>[Signature]</i>	12/7/22	<i>[Signature]</i>	12/7/22

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

2268803

PADEP Short List Analytical Suites per Table III-5:

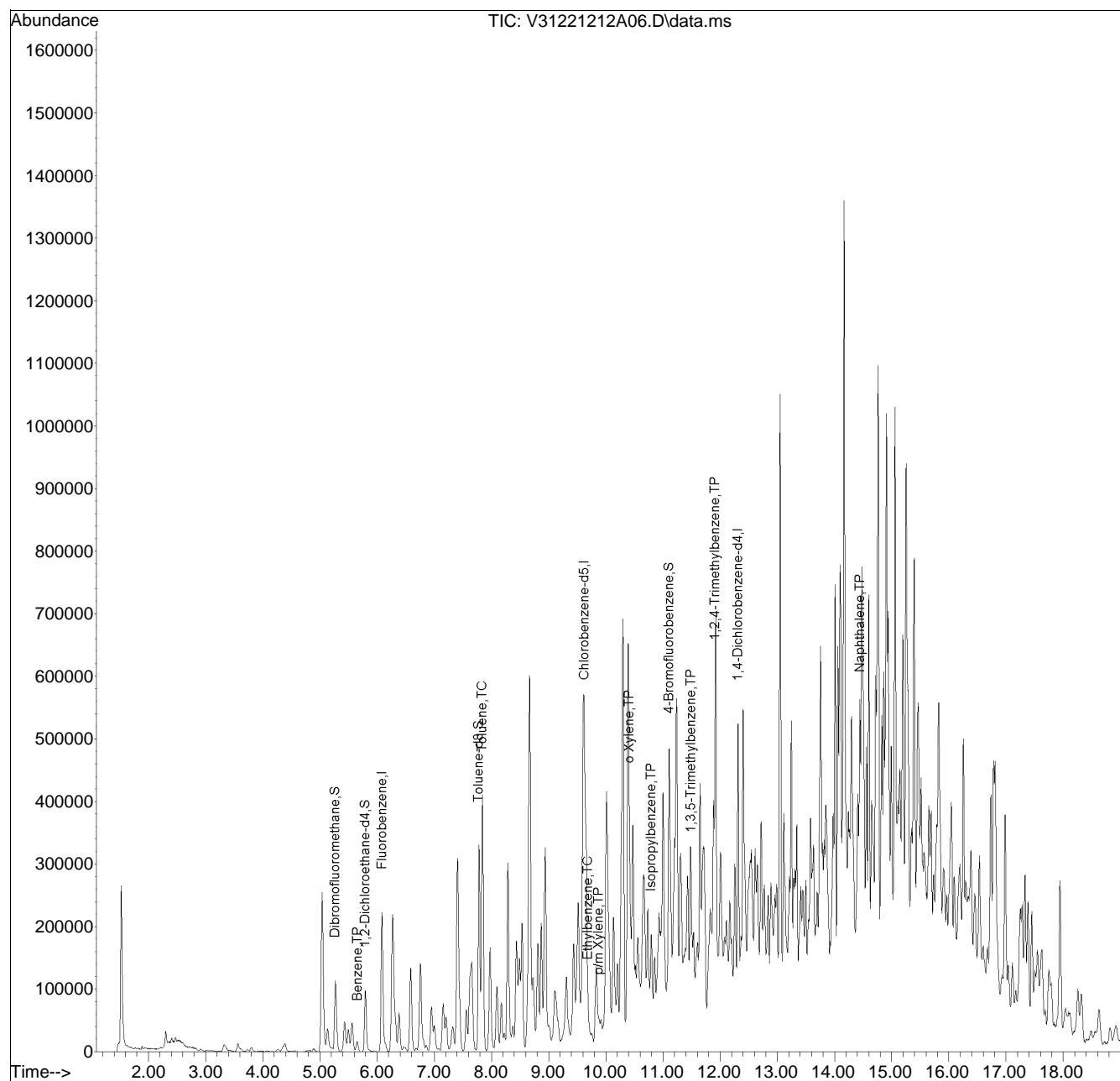
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212A\
 Data File : V31221212A06.D
 Acq On : 12 Dec 2022 09:54 am
 Operator : VOA131:NLK
 Sample : L2268803-01,31H,4.42,5,0.100,,A,R2F
 Misc : WG1722683,ICAL19531
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 12 14:12:47 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221212A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V31221212A01.D•

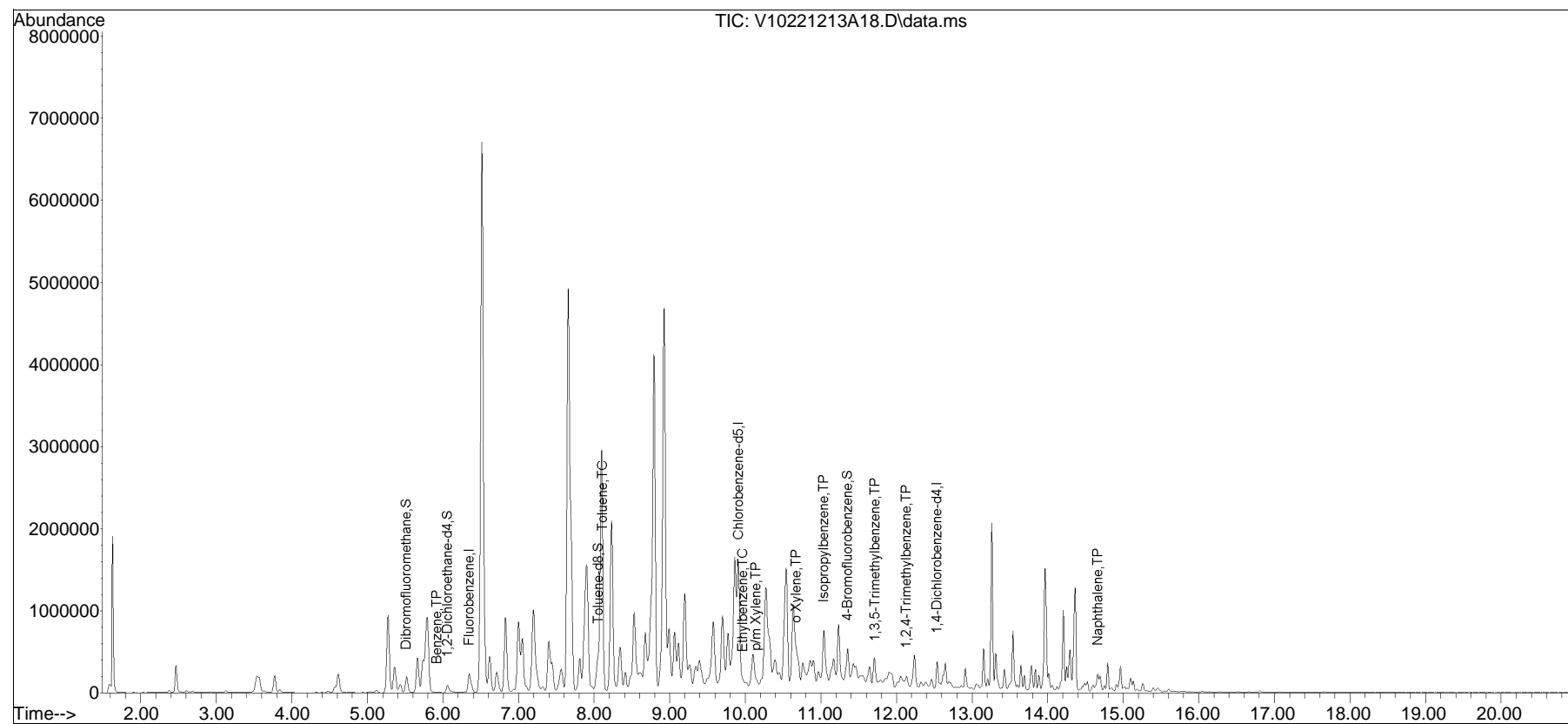


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221213A\
 Data File : V10221213A18.D
 Acq On : 13 Dec 2022 4:45 pm
 Operator : VOA110:AJK
 Sample : 12268803-02,31,4.10,5,,c,r2f
 Misc : WG1722945,ICAL19281
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 13 18:29:34 2022
 Quant Method : I:\VOLATILES\VOA110\2022\221213A\V110_220822N_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Aug 23 09:34:28 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10221213A01.D•

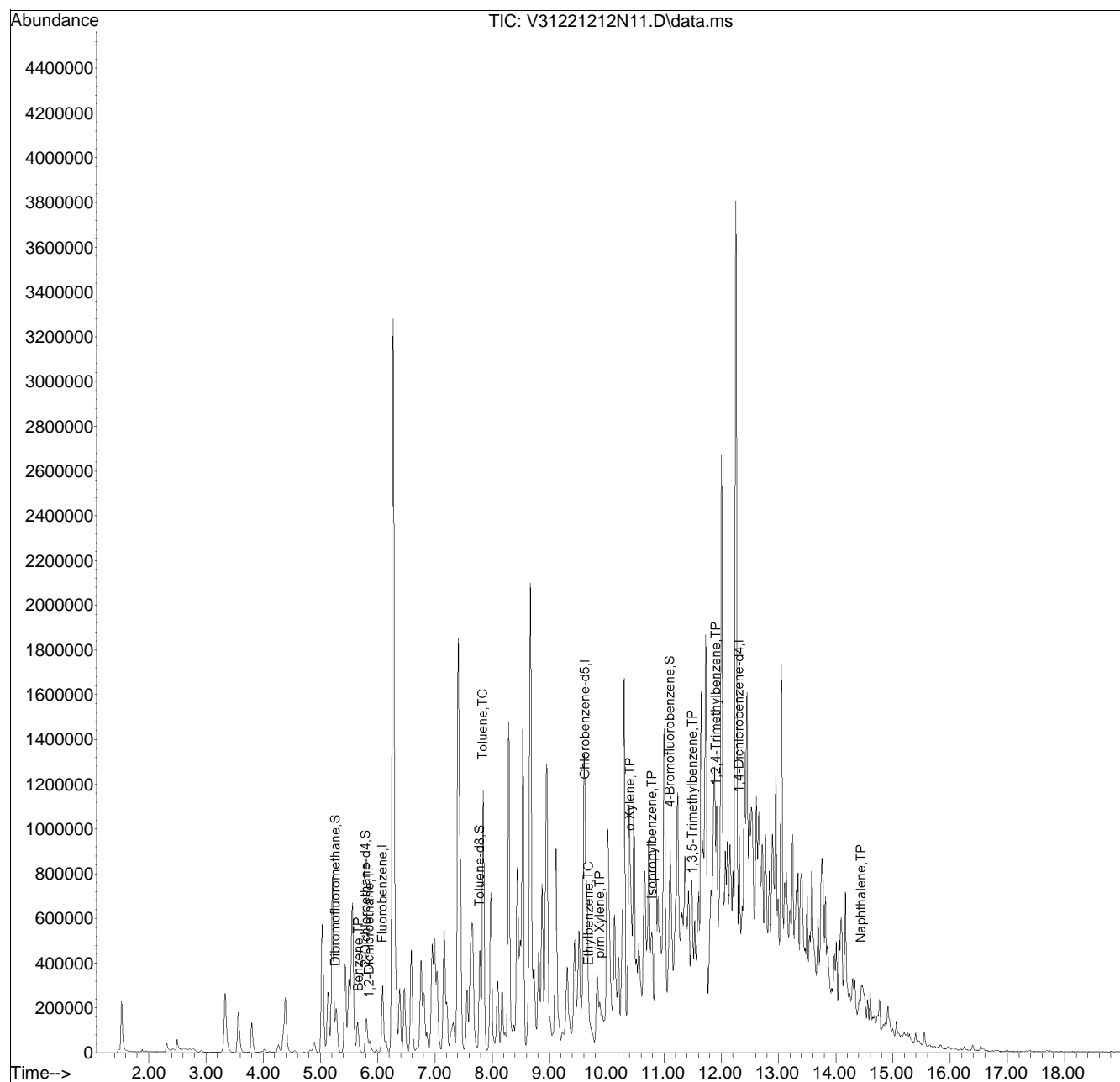


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
 Data File : V31221212N11.D
 Acq On : 12 Dec 2022 10:38 pm
 Operator : VOA131:NLK
 Sample : L2268803-09,31H,5.65,5,0.100,,A,R2F
 Misc : WG1722648,ICAL19531
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 13 07:50:51 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

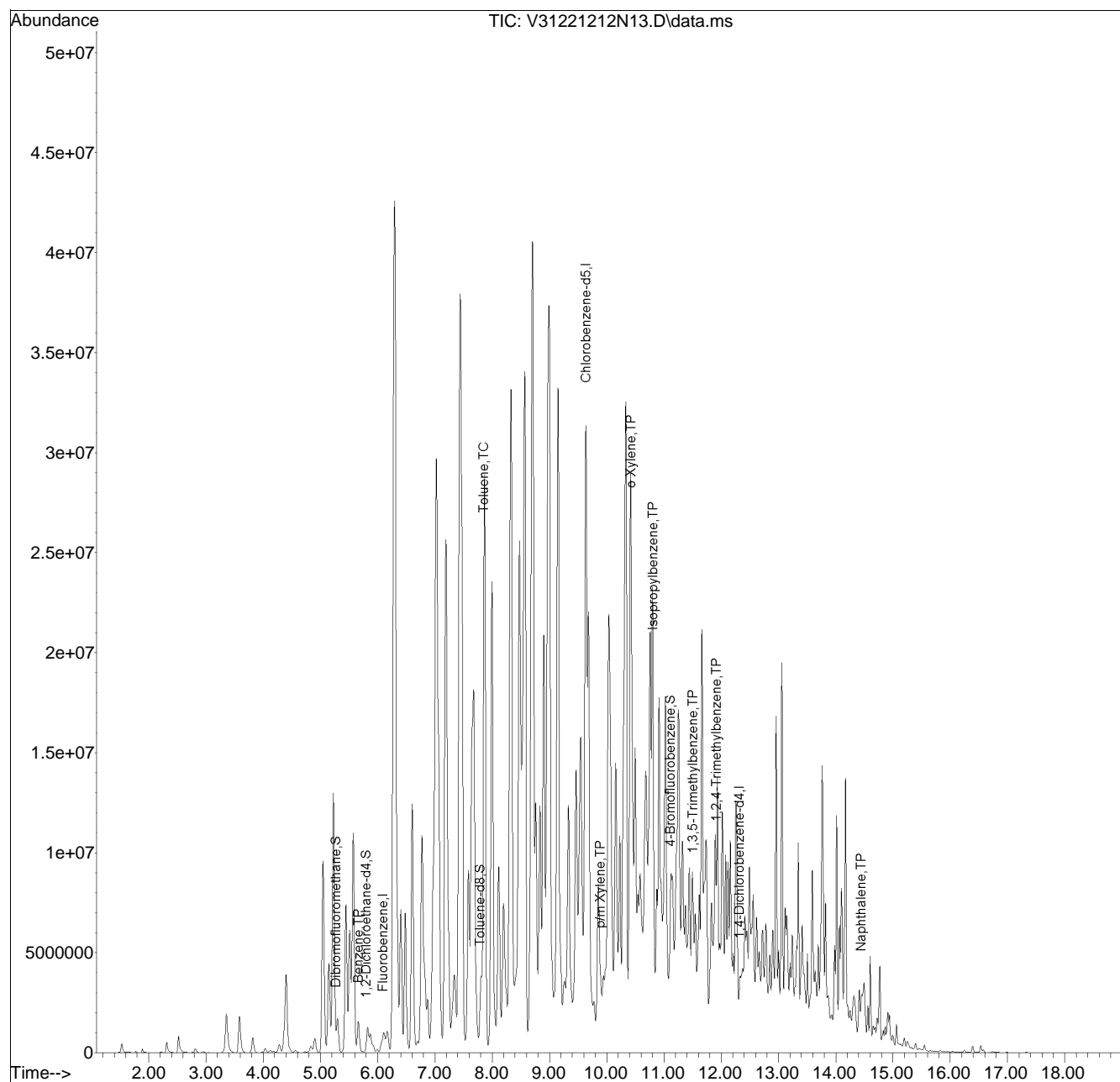


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
 Data File : V31221212N13.D
 Acq On : 12 Dec 2022 11:24 pm
 Operator : VOA131:NLK
 Sample : L2268803-10,31,4.11,5,,B,R2F
 Misc : WG1722651,ICAL19531
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 13 08:12:22 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

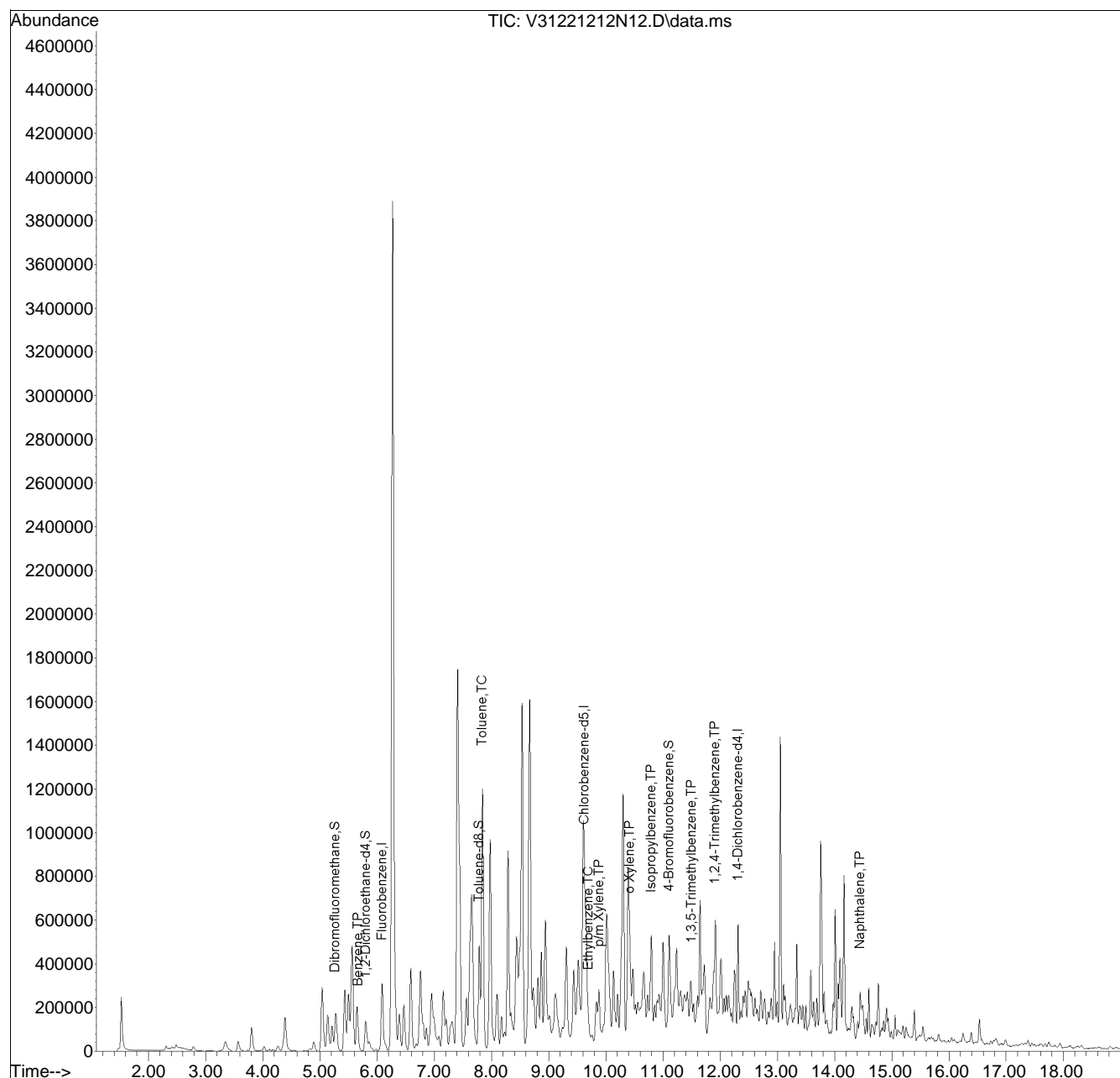


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
Data File : V31221212N12.D
Acq On : 12 Dec 2022 11:01 pm
Operator : VOA131:NLK
Sample : L2268803-11,31H,4.30,5,0.100,,A,R2F
Misc : WG1722648,ICAL19531
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 13 08:11:48 2022
Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

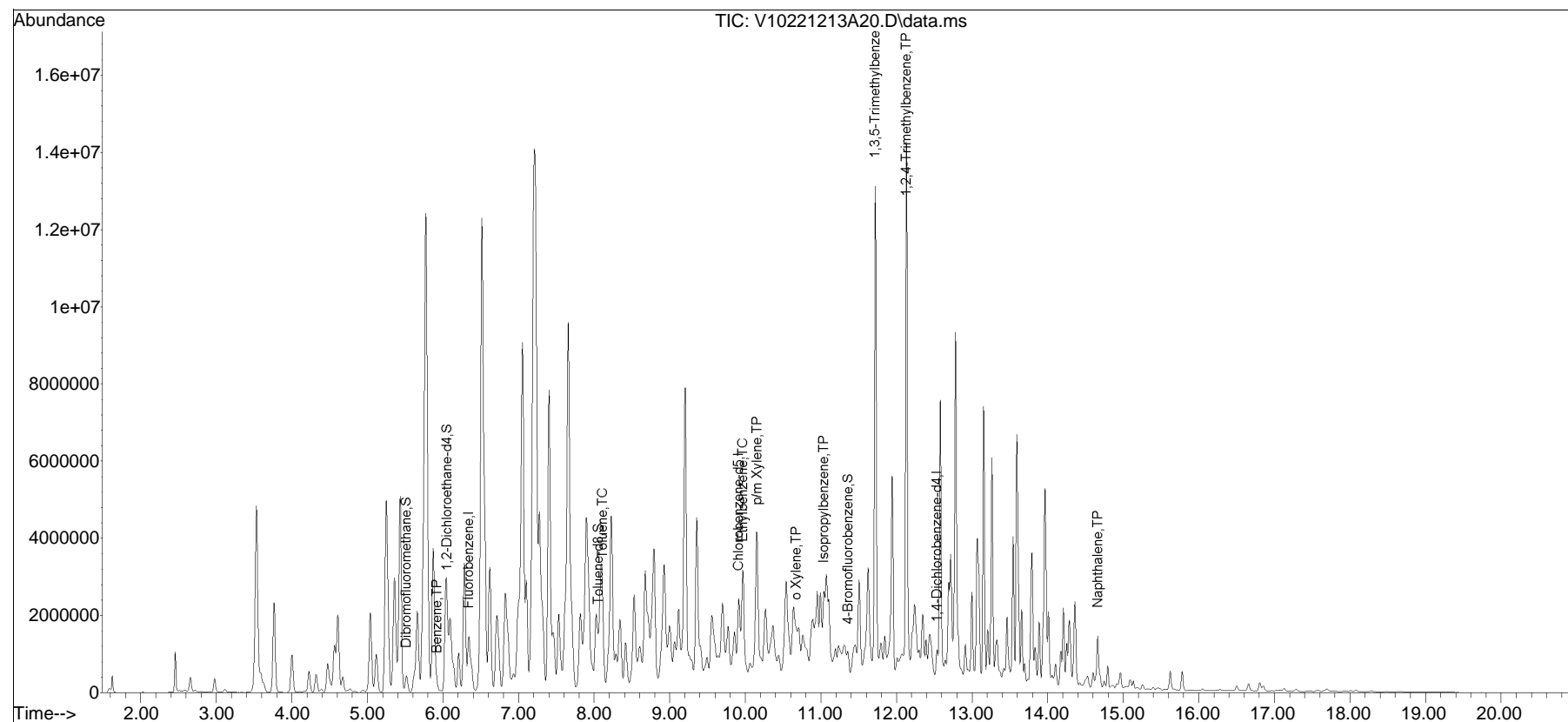


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221213A\
Data File : V10221213A20.D
Acq On : 13 Dec 2022 5:40 pm
Operator : VOA110:AJK
Sample : 12268803-18d2,31h,4.23,5,0.05,,a,r2f
Misc : WG1722950,ICAL19281
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 13 18:30:51 2022
Quant Method : I:\VOLATILES\VOA110\2022\221213A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10221213A01.D•





ANALYTICAL REPORT

Lab Number:	L2269124
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/15/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269124-01	GPR286-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:30	12/08/22
L2269124-02	GPR286-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:40	12/08/22
L2269124-03	GPR286-05-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:50	12/08/22
L2269124-04	GPR286-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:00	12/08/22
L2269124-05	GPR286-08-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:10	12/08/22
L2269124-06	GPR286-11-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:20	12/08/22
L2269124-07	GPR286-13-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:30	12/08/22
L2269124-08	GPR286-16-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:40	12/08/22
L2269124-09	GPR270-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:10	12/08/22
L2269124-10	GPR270-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:20	12/08/22
L2269124-11	GPR270-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:30	12/08/22
L2269124-12	GPR270-08-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:40	12/08/22
L2269124-13	GPR270-09-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:50	12/08/22
L2269124-14	GPR270-11-SS01	SOIL	PHILADELPHIA, PA	12/08/22 12:00	12/08/22
L2269124-15	GPR270-13-SS01	SOIL	PHILADELPHIA, PA	12/08/22 12:10	12/08/22
L2269124-16	GPR1047-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:00	12/08/22
L2269124-17	GPR1047-02-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:10	12/08/22
L2269124-18	GPR1047-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:20	12/08/22
L2269124-19	GPR1047-04-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:30	12/08/22
L2269124-20	GPR1047-06-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:35	12/08/22
L2269124-21	GPR1047-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:50	12/08/22
L2269124-22	DUP-54	SOIL	PHILADELPHIA, PA	12/08/22 00:00	12/08/22
L2269124-23	FB-221208-1	WATER	PHILADELPHIA, PA	12/08/22 12:00	12/08/22
L2269124-24	FB-221208-2	WATER	PHILADELPHIA, PA	12/08/22 14:55	12/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269124-25	TB-221208	WATER	PHILADELPHIA, PA	12/08/22 00:00	12/08/22



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

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.

Volatile Organics

L2269124-06, -10, 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.

L2269124-06: 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.

L2269124-09: 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.

L2269124-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (226%); 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.

L2269124-10: 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.

L2269124-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (159%); 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.

L2269124-13: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (133%) 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.

L2269124-14: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (151%) and 4-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Case Narrative (continued)

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.

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2269124-23, -24, and -25, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics by SIM

The WG1722646-1 Method Blank, associated with L2269124-23 and -24, has a concentration above the reporting limit for Benzo(a)anthracene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

Total Metals

The WG1721469-3 MS recovery, performed on L2269124-01, is outside the acceptance criteria for lead (138%). A post digestion spike was performed and yielded unacceptable recoveries for lead (158%). The serial dilution recovery was acceptable; therefore, the matrix test passed for the sample matrix.

The WG1721469-4 Laboratory Duplicate RPD for lead (34%), performed on L2269124-01, 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:  Melissa Sturgis

Title: Technical Director/Representative

Date: 12/15/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 14:56
 Analyst: AJK
 Percent Solids: 69%

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	1
Benzene	0.066		mg/kg	0.062	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	1
Toluene	1.2		mg/kg	0.12	0.067	1
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	1
Ethylbenzene	1.9		mg/kg	0.12	0.017	1
p/m-Xylene	6.0		mg/kg	0.25	0.069	1
o-Xylene	1.1		mg/kg	0.12	0.036	1
Xylenes, Total	7.1		mg/kg	0.12	0.036	1
Isopropylbenzene	11.		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.37		mg/kg	0.25	0.024	1
1,2,4-Trimethylbenzene	5.2		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02
 Client ID: GPR286-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 13:14
 Analyst: NLK
 Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00035	1
Benzene	ND		mg/kg	0.00086	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00094	1
1,2-Dibromoethane	ND		mg/kg	0.00086	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00096	1
o-Xylene	ND		mg/kg	0.0017	0.00050	1
Xylenes, Total	ND		mg/kg	0.0017	0.00050	1
Isopropylbenzene	0.00039	J	mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0034	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
 Client ID: GPR286-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 13:40
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:06
 Analyst: NLK
 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	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	119		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05
 Client ID: GPR286-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:32
 Analyst: NLK
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00095	1
o-Xylene	ND		mg/kg	0.0017	0.00049	1
Xylenes, Total	ND		mg/kg	0.0017	0.00049	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 11:45
 Analyst: JIC
 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	0.10	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	ND		mg/kg	0.052	0.0073	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	0.051	J	mg/kg	0.052	0.015	1
Xylenes, Total	0.051	J	mg/kg	0.052	0.015	1
Isopropylbenzene	0.57		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	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07
 Client ID: GPR286-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:24
 Analyst: NLK
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
Benzene	ND		mg/kg	0.0010	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00052	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00059	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00059	1
Xylenes, Total	ND		mg/kg	0.0020	0.00059	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0040	0.00039	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0040	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08
 Client ID: GPR286-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:50
 Analyst: NLK
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
Benzene	ND		mg/kg	0.0010	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00052	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00059	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00059	1
Xylenes, Total	ND		mg/kg	0.0020	0.00059	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0040	0.00039	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0040	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:15
 Analyst: NLK
 Percent Solids: 65%

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	0.036	J	mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	0.80		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	0.051	J	mg/kg	0.11	0.015	1
p/m-Xylene	0.13	J	mg/kg	0.22	0.061	1
o-Xylene	0.055	J	mg/kg	0.11	0.032	1
Xylenes, Total	0.18	J	mg/kg	0.11	0.032	1
Isopropylbenzene	0.048	J	mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	0.087	J	mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 13:17
 Analyst: NLK
 Percent Solids: 65%

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	0.0015	J	mg/kg	0.0033	0.00092	1
o-Xylene	0.0040		mg/kg	0.0016	0.00048	1
Xylenes, Total	0.0055	J	mg/kg	0.0016	0.00048	1
Isopropylbenzene	0.0058		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.0031	J	mg/kg	0.0033	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	226	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 11:22
 Analyst: JIC
 Percent Solids: 65%

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	0.061		mg/kg	0.057	0.019	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	1
Toluene	0.96		mg/kg	0.11	0.062	1
1,2-Dibromoethane	ND		mg/kg	0.057	0.034	1
Ethylbenzene	0.075	J	mg/kg	0.11	0.016	1
p/m-Xylene	0.21	J	mg/kg	0.23	0.064	1
o-Xylene	0.039	J	mg/kg	0.11	0.033	1
Xylenes, Total	0.25	J	mg/kg	0.11	0.033	1
Isopropylbenzene	0.21		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 10:59
 Analyst: JIC
 Percent Solids: 58%

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	0.064	J	mg/kg	0.066	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	1
Toluene	0.99		mg/kg	0.13	0.072	1
1,2-Dibromoethane	ND		mg/kg	0.066	0.039	1
Ethylbenzene	0.075	J	mg/kg	0.13	0.019	1
p/m-Xylene	0.20	J	mg/kg	0.26	0.074	1
o-Xylene	0.083	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.28	J	mg/kg	0.13	0.038	1
Isopropylbenzene	0.27		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.035	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.13	J	mg/kg	0.26	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	159	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12
 Client ID: GPR270-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:33
 Analyst: NLK
 Percent Solids: 70%

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	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:00
 Analyst: NLK
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0014	J	mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.00026	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0029	0.00082	1
o-Xylene	0.00080	J	mg/kg	0.0015	0.00043	1
Xylenes, Total	0.00080	J	mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.00073	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.00032	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	133	Q	70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:26
 Analyst: NLK
 Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	ND		mg/kg	0.00087	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00045	1
Toluene	ND		mg/kg	0.0017	0.00095	1
1,2-Dibromoethane	ND		mg/kg	0.00087	0.00051	1
Ethylbenzene	0.00060	J	mg/kg	0.0017	0.00025	1
p/m-Xylene	0.00099	J	mg/kg	0.0035	0.00098	1
o-Xylene	0.0023		mg/kg	0.0017	0.00051	1
Xylenes, Total	0.0033	J	mg/kg	0.0017	0.00051	1
Isopropylbenzene	0.0033		mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	0.00049	J	mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.00098	J	mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	151	Q	70-130
4-Bromofluorobenzene	188	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15
 Client ID: GPR270-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:52
 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	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	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	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:59
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:03
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 16:10
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:23
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-25
 Client ID: TB-221208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 00:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 16:21
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-25
 Client ID: TB-221208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 00:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:44
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-25 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-05,07-08,12-15 Batch: WG1722715-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1722718-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/13/22 09:42
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-25 Batch: WG1722884-5					
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	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:51
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1722950-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,10-11 Batch: WG1723588-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1723589-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-25 Batch: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-05,07-08,12-15 Batch: WG1722715-3 WG1722715-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	93		92		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1722718-3 WG1722718-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	93		93		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-25 Batch: WG1722884-3 WG1722884-4								
Methyl tert butyl ether	98		95		63-130	3		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	115		115		70-130	0		20
Isopropylbenzene	100		100		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	104		106		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	88		88		70-130
Dibromofluoromethane	113		112		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1722950-3 WG1722950-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	109		106		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,10-11 Batch: WG1723588-3 WG1723588-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 Batch: WG1723589-3 WG1723589-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	95		96		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:15
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.	E	mg/kg	0.24	0.029	1
Fluorene	1.0		mg/kg	0.24	0.023	1
Phenanthrene	4.9		mg/kg	0.14	0.028	1
Anthracene	1.2		mg/kg	0.14	0.046	1
Pyrene	5.5		mg/kg	0.14	0.023	1
Benzo(a)anthracene	3.1		mg/kg	0.14	0.026	1
Chrysene	3.3		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	4.5		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.3		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	2.3		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	125	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01 D
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:11
 Analyst: LJG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02
 Client ID: GPR286-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:39
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.4		mg/kg	0.25	0.031	1
Fluorene	0.27		mg/kg	0.25	0.025	1
Phenanthrene	1.4		mg/kg	0.15	0.031	1
Anthracene	0.39		mg/kg	0.15	0.050	1
Pyrene	1.1		mg/kg	0.15	0.025	1
Benzo(a)anthracene	0.97		mg/kg	0.15	0.029	1
Chrysene	0.95		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	1.4		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.1		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	0.67		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
 Client ID: GPR286-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:03
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:27
 Analyst: JG
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.0		mg/kg	0.23	0.028	1
Fluorene	0.36		mg/kg	0.23	0.022	1
Phenanthrene	1.9		mg/kg	0.14	0.028	1
Anthracene	0.56		mg/kg	0.14	0.044	1
Pyrene	2.3		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.7		mg/kg	0.14	0.026	1
Chrysene	1.8		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.5		mg/kg	0.14	0.038	1
Benzo(a)pyrene	2.0		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.2		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	110		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05
 Client ID: GPR286-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:51
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.59		mg/kg	0.24	0.029	1
Fluorene	0.054	J	mg/kg	0.24	0.023	1
Phenanthrene	0.24		mg/kg	0.14	0.029	1
Anthracene	0.077	J	mg/kg	0.14	0.047	1
Pyrene	0.34		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.20		mg/kg	0.14	0.027	1
Chrysene	0.20		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.25		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.22		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	148	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:52
 Analyst: JG
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.2		mg/kg	0.18	0.022	1
Fluorene	0.071	J	mg/kg	0.18	0.018	1
Phenanthrene	0.35		mg/kg	0.11	0.022	1
Anthracene	0.094	J	mg/kg	0.11	0.036	1
Pyrene	0.38		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.27		mg/kg	0.11	0.021	1
Chrysene	0.29		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.39		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.33		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.21		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07
 Client ID: GPR286-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:16
 Analyst: JG
 Percent Solids: 63%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.		mg/kg	0.26	0.032	1
Fluorene	0.46		mg/kg	0.26	0.025	1
Phenanthrene	2.1		mg/kg	0.16	0.032	1
Anthracene	0.90		mg/kg	0.16	0.051	1
Pyrene	1.6		mg/kg	0.16	0.026	1
Benzo(a)anthracene	1.7		mg/kg	0.16	0.029	1
Chrysene	1.8		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	2.8		mg/kg	0.16	0.044	1
Benzo(a)pyrene	2.5		mg/kg	0.21	0.064	1
Benzo(ghi)perylene	1.9		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08
 Client ID: GPR286-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:40
 Analyst: JG
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.24	0.030	1
Fluorene	ND		mg/kg	0.24	0.024	1
Phenanthrene	0.031	J	mg/kg	0.15	0.030	1
Anthracene	ND		mg/kg	0.15	0.048	1
Pyrene	0.060	J	mg/kg	0.15	0.024	1
Benzo(a)anthracene	0.036	J	mg/kg	0.15	0.028	1
Chrysene	0.032	J	mg/kg	0.15	0.025	1
Benzo(b)fluoranthene	ND		mg/kg	0.15	0.041	1
Benzo(a)pyrene	ND		mg/kg	0.20	0.060	1
Benzo(ghi)perylene	ND		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:04
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.	E	mg/kg	0.25	0.031	1
Fluorene	2.1		mg/kg	0.25	0.025	1
Phenanthrene	5.8		mg/kg	0.15	0.031	1
Anthracene	2.7		mg/kg	0.15	0.049	1
Pyrene	6.1		mg/kg	0.15	0.025	1
Benzo(a)anthracene	3.2		mg/kg	0.15	0.028	1
Chrysene	3.6		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	3.7		mg/kg	0.15	0.043	1
Benzo(a)pyrene	3.1		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	2.2		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09 D
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:34
 Analyst: LJG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.		mg/kg	1.3	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:28
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.	E	mg/kg	0.25	0.030	1
Fluorene	6.0		mg/kg	0.25	0.024	1
Phenanthrene	22.	E	mg/kg	0.15	0.030	1
Anthracene	5.3		mg/kg	0.15	0.049	1
Pyrene	13.	E	mg/kg	0.15	0.025	1
Benzo(a)anthracene	4.8		mg/kg	0.15	0.028	1
Chrysene	5.4		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	3.3		mg/kg	0.15	0.042	1
Benzo(a)pyrene	2.9		mg/kg	0.20	0.061	1
Benzo(ghi)perylene	1.4		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	189	Q	23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10 D
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 08:44
 Analyst: LJG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.		mg/kg	1.2	0.15	5
Phenanthrene	23.		mg/kg	0.75	0.15	5
Pyrene	13.		mg/kg	0.75	0.12	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:52
 Analyst: JG
 Percent Solids: 58%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.1		mg/kg	0.28	0.034	1
Fluorene	5.4		mg/kg	0.28	0.027	1
Phenanthrene	19.	E	mg/kg	0.17	0.034	1
Anthracene	4.7		mg/kg	0.17	0.054	1
Pyrene	12.	E	mg/kg	0.17	0.028	1
Benzo(a)anthracene	4.4		mg/kg	0.17	0.031	1
Chrysene	4.8		mg/kg	0.17	0.029	1
Benzo(b)fluoranthene	3.5		mg/kg	0.17	0.047	1
Benzo(a)pyrene	2.8		mg/kg	0.22	0.068	1
Benzo(ghi)perylene	1.4		mg/kg	0.22	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	196	Q	23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11 D
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:58
 Analyst: LJG
 Percent Solids: 58%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	20.		mg/kg	0.84	0.17	5
Pyrene	12.		mg/kg	0.84	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12
 Client ID: GPR270-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:15
 Analyst: JG
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.23	0.028	1
Fluorene	ND		mg/kg	0.23	0.022	1
Phenanthrene	0.053	J	mg/kg	0.14	0.028	1
Anthracene	ND		mg/kg	0.14	0.045	1
Pyrene	0.054	J	mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.045	J	mg/kg	0.14	0.026	1
Chrysene	0.037	J	mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	ND		mg/kg	0.14	0.039	1
Benzo(a)pyrene	ND		mg/kg	0.18	0.057	1
Benzo(ghi)perylene	ND		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:40
 Analyst: JG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7		mg/kg	0.22	0.027	1
Fluorene	5.0		mg/kg	0.22	0.022	1
Phenanthrene	13.	E	mg/kg	0.13	0.027	1
Anthracene	4.6		mg/kg	0.13	0.043	1
Pyrene	12.	E	mg/kg	0.13	0.022	1
Benzo(a)anthracene	4.8		mg/kg	0.13	0.025	1
Chrysene	4.9		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	4.0		mg/kg	0.13	0.037	1
Benzo(a)pyrene	3.2		mg/kg	0.18	0.054	1
Benzo(ghi)perylene	1.6		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	178	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13 D
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 08:21
 Analyst: LJG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	13.		mg/kg	0.67	0.14	5
Pyrene	11.		mg/kg	0.67	0.11	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:04
 Analyst: JG
 Percent Solids: 62%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	19.	E	mg/kg	0.26	0.032	1
Fluorene	1.2		mg/kg	0.26	0.026	1
Phenanthrene	5.7		mg/kg	0.16	0.032	1
Anthracene	2.9		mg/kg	0.16	0.051	1
Pyrene	2.7		mg/kg	0.16	0.026	1
Benzo(a)anthracene	2.1		mg/kg	0.16	0.030	1
Chrysene	2.4		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	2.9		mg/kg	0.16	0.044	1
Benzo(a)pyrene	2.8		mg/kg	0.21	0.064	1
Benzo(ghi)perylene	3.5		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14 D
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 09:08
 Analyst: LJG
 Percent Solids: 62%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	20.		mg/kg	1.3	0.16	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15
 Client ID: GPR270-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:27
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.030	J	mg/kg	0.20	0.024	1
Fluorene	0.046	J	mg/kg	0.20	0.019	1
Phenanthrene	0.31		mg/kg	0.12	0.024	1
Anthracene	0.091	J	mg/kg	0.12	0.038	1
Pyrene	0.42		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.32		mg/kg	0.12	0.022	1
Chrysene	0.37		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.42		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.32		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.20		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/14/22 10:28
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/13/22 21:49

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	95		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	66		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/14/22 10:44
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/13/22 21:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.01	J	ug/l	0.10	0.01	1
Phenanthrene	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	73		15-120
4-Terphenyl-d14	67		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/11/22 09:26
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-15 Batch: WG1721610-1					
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	109		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	91		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM
Analytical Date: 12/13/22 13:50
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/13/22 09:47

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23-24 Batch: WG1722646-1					
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	0.06		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	89		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	64		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-15 Batch: WG1721610-2 WG1721610-3								
Naphthalene	82		76		40-140	8		50
Fluorene	86		80		40-140	7		50
Phenanthrene	78		75		40-140	4		50
Anthracene	82		77		40-140	6		50
Pyrene	87		83		35-142	5		50
Benzo(a)anthracene	85		80		40-140	6		50
Chrysene	83		79		40-140	5		50
Benzo(b)fluoranthene	92		86		40-140	7		50
Benzo(a)pyrene	93		86		40-140	8		50
Benzo(ghi)perylene	86		81		40-140	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	117		23-120
2-Fluorobiphenyl	98		90		30-120
4-Terphenyl-d14	90		87		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23-24 Batch: WG1722646-2 WG1722646-3								
Naphthalene	67		41		40-140	48	Q	40
Fluorene	72		43		40-140	50	Q	40
Phenanthrene	72		44		40-140	48	Q	40
Anthracene	75		45		40-140	50	Q	40
Pyrene	74		47		26-127	45	Q	40
Benzo(a)anthracene	78		47		40-140	50	Q	40
Chrysene	80		46		40-140	54	Q	40
Benzo(b)fluoranthene	78		46		40-140	52	Q	40
Benzo(a)pyrene	83		48		40-140	53	Q	40
Benzo(ghi)perylene	82		46		40-140	56	Q	40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	110		66		23-120
2-Fluorobiphenyl	69		42		15-120
4-Terphenyl-d14	71		46		41-149



METALS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01

Date Collected: 12/08/22 09:30

Client ID: GPR286-01-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

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	2.80	0.150	1	12/10/22 00:05	12/10/22 14:22	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02

Date Collected: 12/08/22 09:40

Client ID: GPR286-03-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	295		mg/kg	2.94	0.158	1	12/10/22 00:05	12/10/22 14:12	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
 Client ID: GPR286-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.98		mg/kg	2.26	0.121	1	12/10/22 00:05	12/10/22 14:16	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 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	142		mg/kg	2.66	0.142	1	12/10/22 00:05	12/10/22 14:19	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05

Date Collected: 12/08/22 10:10

Client ID: GPR286-08-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

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	2.88	0.154	1	12/10/22 00:05	12/10/22 14:46	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 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	48.9		mg/kg	2.19	0.118	1	12/10/22 00:05	12/10/22 14:50	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07

Date Collected: 12/08/22 10:30

Client ID: GPR286-13-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	302		mg/kg	3.13	0.168	1	12/10/22 00:05	12/10/22 14:53	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08
 Client ID: GPR286-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.52		mg/kg	2.93	0.157	1	12/10/22 00:05	12/10/22 14:57	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09

Date Collected: 12/08/22 11:10

Client ID: GPR270-01-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	341		mg/kg	3.01	0.161	1	12/10/22 00:05	12/10/22 15:00	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10

Date Collected: 12/08/22 11:20

Client ID: GPR270-03-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	450		mg/kg	3.05	0.164	1	12/10/22 00:05	12/10/22 15:03	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11

Date Collected: 12/08/22 11:30

Client ID: GPR270-07-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 58%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	537		mg/kg	3.42	0.184	1	12/10/22 00:05	12/10/22 15:07	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12

Date Collected: 12/08/22 11:40

Client ID: GPR270-08-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	14.9		mg/kg	2.85	0.153	1	12/10/22 00:05	12/10/22 15:10	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13

Date Collected: 12/08/22 11:50

Client ID: GPR270-09-SS01

Date Received: 12/08/22

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	400		mg/kg	2.62	0.140	1	12/10/22 00:05	12/10/22 15:14	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14

Date Collected: 12/08/22 12:00

Client ID: GPR270-11-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	589		mg/kg	3.04	0.163	1	12/10/22 00:05	12/10/22 15:17	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15

Date Collected: 12/08/22 12:10

Client ID: GPR270-13-SS01

Date Received: 12/08/22

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	215		mg/kg	2.36	0.126	1	12/10/22 00:05	12/10/22 15:27	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23

Date Collected: 12/08/22 12:00

Client ID: FB-221208-1

Date Received: 12/08/22

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	12/10/22 17:00	12/15/22 08:39	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24

Date Collected: 12/08/22 14:55

Client ID: FB-221208-2

Date Received: 12/08/22

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	12/10/22 17:00	12/15/22 10:01	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-15 Batch: WG1721469-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/10/22 00:05	12/10/22 14:05	1,6010D	NTB

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: WG1721513-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/10/22 17:00	12/15/22 09:17	1,6020B	EGW

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 Batch: WG1721469-2 SRM Lot Number: D116-540								
Lead, Total	104		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1721513-2								
Lead, Total	98		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 QC Batch ID: WG1721469-3 QC Sample: L2269124-01 Client ID: GPR286-01-SS01												
Lead, Total	143	58.8	224	138	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1721513-3 QC Sample: L2269204-01 Client ID: MS Sample												
Lead, Total	1.516	530	528.7	99		-	-		75-125	-		20



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 QC Batch ID: WG1721469-4 QC Sample: L2269124-01 Client ID: GPR286-01-SS01						
Lead, Total	143	201	mg/kg	34	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01
Client ID: GPR286-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
Date Received: 12/08/22
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	68.7		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02

Date Collected: 12/08/22 09:40

Client ID: GPR286-03-SS01

Date Received: 12/08/22

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	64.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
Client ID: GPR286-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
Date Received: 12/08/22
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	87.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04

Date Collected: 12/08/22 10:00

Client ID: GPR286-07-SS01

Date Received: 12/08/22

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	71.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05

Date Collected: 12/08/22 10:10

Client ID: GPR286-08-SS01

Date Received: 12/08/22

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	68.8		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06

Date Collected: 12/08/22 10:20

Client ID: GPR286-11-SS01

Date Received: 12/08/22

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	89.1		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07

Date Collected: 12/08/22 10:30

Client ID: GPR286-13-SS01

Date Received: 12/08/22

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	63.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08

Date Collected: 12/08/22 10:40

Client ID: GPR286-16-SS01

Date Received: 12/08/22

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	67.4		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09

Date Collected: 12/08/22 11:10

Client ID: GPR270-01-SS01

Date Received: 12/08/22

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	64.9		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10

Date Collected: 12/08/22 11:20

Client ID: GPR270-03-SS01

Date Received: 12/08/22

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	64.9		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-11

Date Collected: 12/08/22 11:30

Client ID: GPR270-07-SS01

Date Received: 12/08/22

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	58.2		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12

Date Collected: 12/08/22 11:40

Client ID: GPR270-08-SS01

Date Received: 12/08/22

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	69.8		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-13

Date Collected: 12/08/22 11:50

Client ID: GPR270-09-SS01

Date Received: 12/08/22

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	73.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-14

Date Collected: 12/08/22 12:00

Client ID: GPR270-11-SS01

Date Received: 12/08/22

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	62.4		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15

Date Collected: 12/08/22 12:10

Client ID: GPR270-13-SS01

Date Received: 12/08/22

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	82.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-16

Date Collected: 12/08/22 13:00

Client ID: GPR1047-01-SS01

Date Received: 12/08/22

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	97.5		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-17
Client ID: GPR1047-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 13:10
Date Received: 12/08/22
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	84.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	7.5		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-18

Date Collected: 12/08/22 13:20

Client ID: GPR1047-03-SS01

Date Received: 12/08/22

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	92.5		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-19

Date Collected: 12/08/22 13:30

Client ID: GPR1047-04-SS01

Date Received: 12/08/22

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	97.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.8		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-20
Client ID: GPR1047-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 13:35
Date Received: 12/08/22
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	96.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	9.0		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-21

Date Collected: 12/08/22 13:50

Client ID: GPR1047-07-SS01

Date Received: 12/08/22

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	94.3		%	0.100	NA	1	-	12/09/22 18:26	121,2540G	MF
pH (H)	10.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-22
Client ID: DUP-54
Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 00:00
Date Received: 12/08/22
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	96.5		%	0.100	NA	1	-	12/09/22 18:26	121,2540G	MF
pH (H)	10.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 16-22 Batch: WG1723412-1								
pH	100		-		99-101	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1721563-1 QC Sample: L2269124-01 Client ID: GPR286-01-SS01						
Solids, Total	68.7	67.8	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-22 QC Batch ID: WG1721568-1 QC Sample: L2266778-08 Client ID: DUP Sample						
Solids, Total	88.1	87.5	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1723412-2 QC Sample: L2267361-01 Client ID: DUP Sample						
pH	8.4	8.3	SU	1		5

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-01B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-01C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-01D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-01F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-02B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-02C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-02D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-02F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-03B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-03C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-03D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-03F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-04B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-04C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-04D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-04F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-05A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-05B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-05C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-05D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-05F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-06A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-06B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-06C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-06D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-06F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-07A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-07B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-07C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-07D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-07F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-08A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-08B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-08C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-08D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-08F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-09A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2269124-09B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260H(14),PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-09C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260H(14),PA-8260HLW(14)
L2269124-09D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-09F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-10A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-10B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-10C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-10D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-10F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-11A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-11B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-11C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-11D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-11F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-12A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-12B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-12C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-12D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-12F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-13A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-13B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-13C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-13D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-13F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-14A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-14B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-14C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-14D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-14F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-15A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-15B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-15C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-15D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-15F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-16A	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		TS(7),PH-9045(1)
L2269124-17A	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		TS(7),PH-9045(1)
L2269124-18A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-19A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-20A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-21A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-22A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-23A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23C	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2269124-23E	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2269124-23F	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2269124-23G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-23H	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-24A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-24B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-24C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-24D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-24E	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2269124-24F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-24G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-25A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-25B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-25C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-25D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

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 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 of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist, Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~12152214~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 12/09/22

ALPHA Job #: L2269124

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											SAMPLE HANDLING	TOTAL # BOTTLES				
		Date	Time																					
69124-01	GPR 286-01-5501	12/8	0930	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"/>	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)	3 2 1 1 1 1 1 1 1 1
-02	GPR 286-03-5501		0940			<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"/>			
-03	GPR 286-05-5501		0950			<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"/>			
-04	GPR 286-07-5501		1000			<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"/>			
-05	GPR 286-08-5501		1010			<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"/>			
-06	GPR 286-11-5501		1020			<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"/>			
-07	GPR 286-13-5501		1030			<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"/>			
-08	GPR 286-16-5501		1040			<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"/>			
-09	GPR 270-01-5501		1110			<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"/>			
-10	GPR 270-03-5501		1120			<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"/>			

Container Type
 Preservative

G G G - - - - -
 F A A - - - - -

5/AMZ
 12/9/22
 0110

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8 1456	SJOWS AMZ	1456 12-8
<i>[Signature]</i>	12-8-190	<i>[Signature]</i>	12-8-190
<i>[Signature]</i>	12-8-2100	<i>[Signature]</i>	12-8-2100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 2 OF 3

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-422-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1261~~ ~~1783~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hlcoglobal.com

Date Rec'd in Lab: 12/09/22 ALPHA Job #: L2209124

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEx Add'l Deliverables

Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
09124-01	GPR 270-07-SS01	12/6	1130	S	TS
-12	GPR 270-08-SS01		1140		
-13	GPR 270-09-SS01		1150		
-14	GPR 270-11-SS01		1200		
-15	GPR 270-13-SS01		1210		
-16	GPR 1047-01-SS01		1300		
-17	GPR 1047-02-SS01		1310		
-18	GPR 1047-03-SS01		1320		
-19	GPR 1047-04-SS01		1330		
-20	GPR 1047-06-SS01	✓	1335	✓	✓

ANALYSIS

VOCs (8260)	SVOCs (8270)	Lead	PH	Other Analytes															
				1	2	3	4	5	6	7	8	9	10	11	12				
<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

Relinquished By: *[Signature]*
 Date/Time: 12/9/22 0110

Container Type: G, G, G
 Preservative: F, A, A

Received By: *[Signature]*
 Date/Time: 12-8-22 145

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 3 OF 3

Westborough, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

Mansfield, MA
 TEL: 508-822-9300
 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamillan 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

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1751~~ ~~1753~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date:

Time:

Date Rec'd in Lab: 12/09/22

ALPHA Job #: L2269124

Report Information Data Deliverables

FAX EMAIL
 ADEX Add'l Deliverables

Billing Information

Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

SAMPLE 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	VOCs (8260)	SVOCs (8270)	Lead	PH											TOTAL # BOTTLES			
		Date	Time																				
69124-21	GPR1047-07-5501	12/8	1350	S	TS	<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"/>	
	GPR1047-07-5501			S		<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"/>	
-22	DUP-54	12/8	-	S		<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"/>	
-23	FB-22-1208-1		1200	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-24	FB-22-1208-2		1200	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1455
-25	TB-22-1208			W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

69124
 12/9/22
 0110

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8 1456	STONER	12-8-2022
<i>[Signature]</i>	12-8-2022	<i>[Signature]</i>	12-8-2022

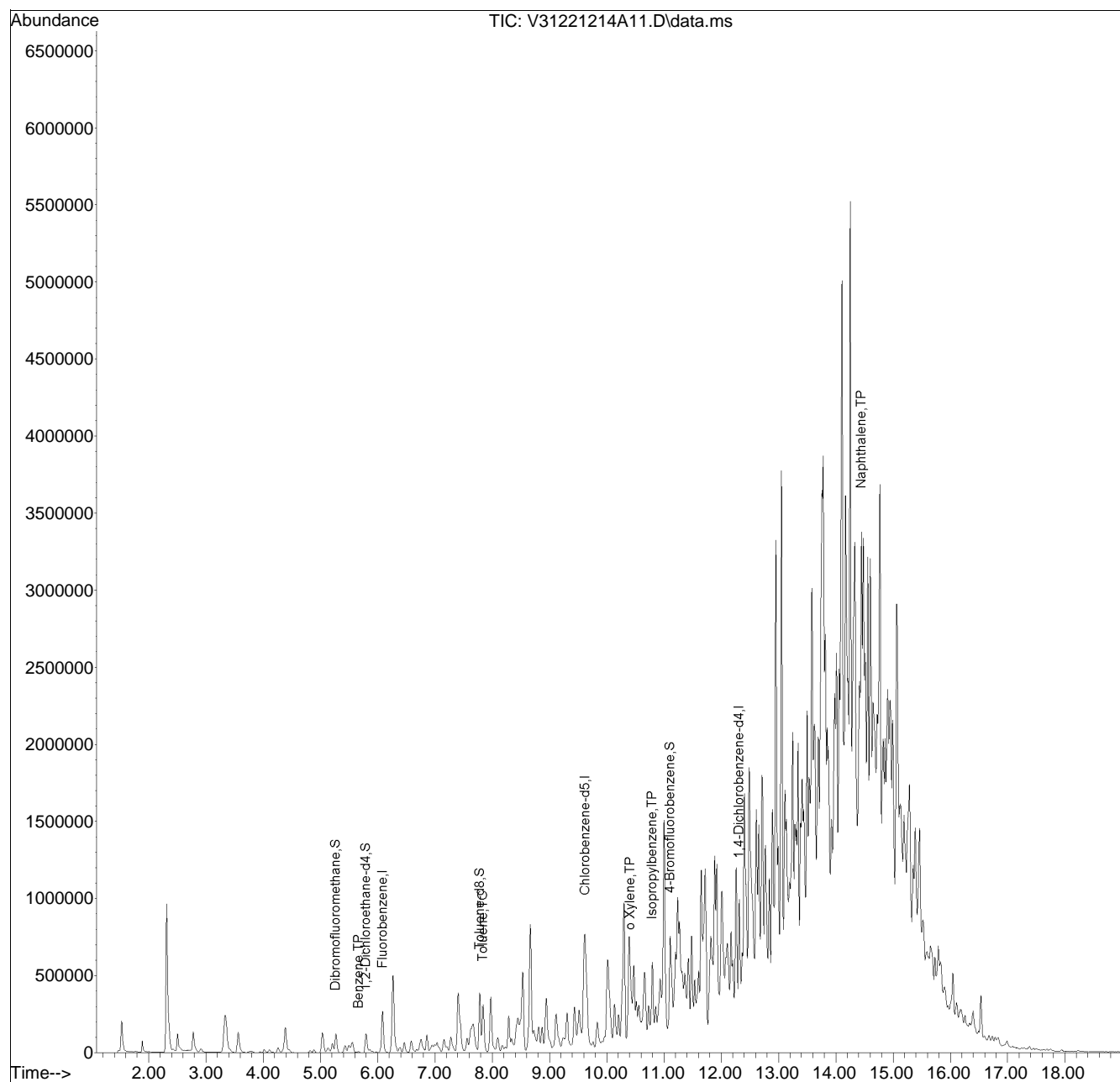
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A11.D
Acq On : 14 Dec 2022 11:45 am
Operator : VOA131:JIC
Sample : L2269124-06,31H,6.11,5,0.100,,A,R2F
Misc : WG1723588,ICAL19531
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 14 13:27:05 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

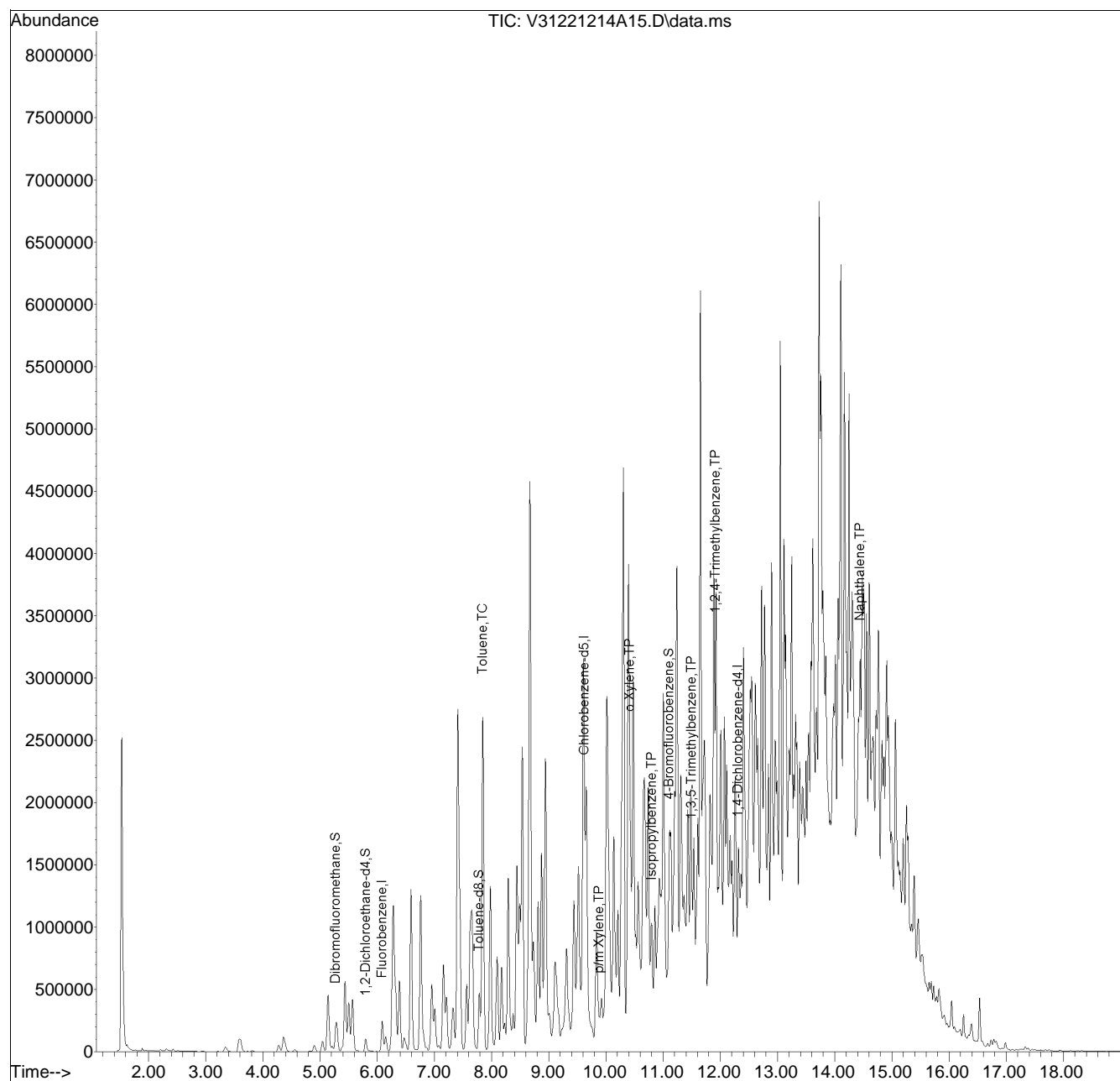


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A15.D
Acq On : 14 Dec 2022 01:17 pm
Operator : VOA131:NLK
Sample : L2269124-09,31,4.71,5,,C,R2F
Misc : WG1723589,ICAL19531
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 14 13:48:55 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

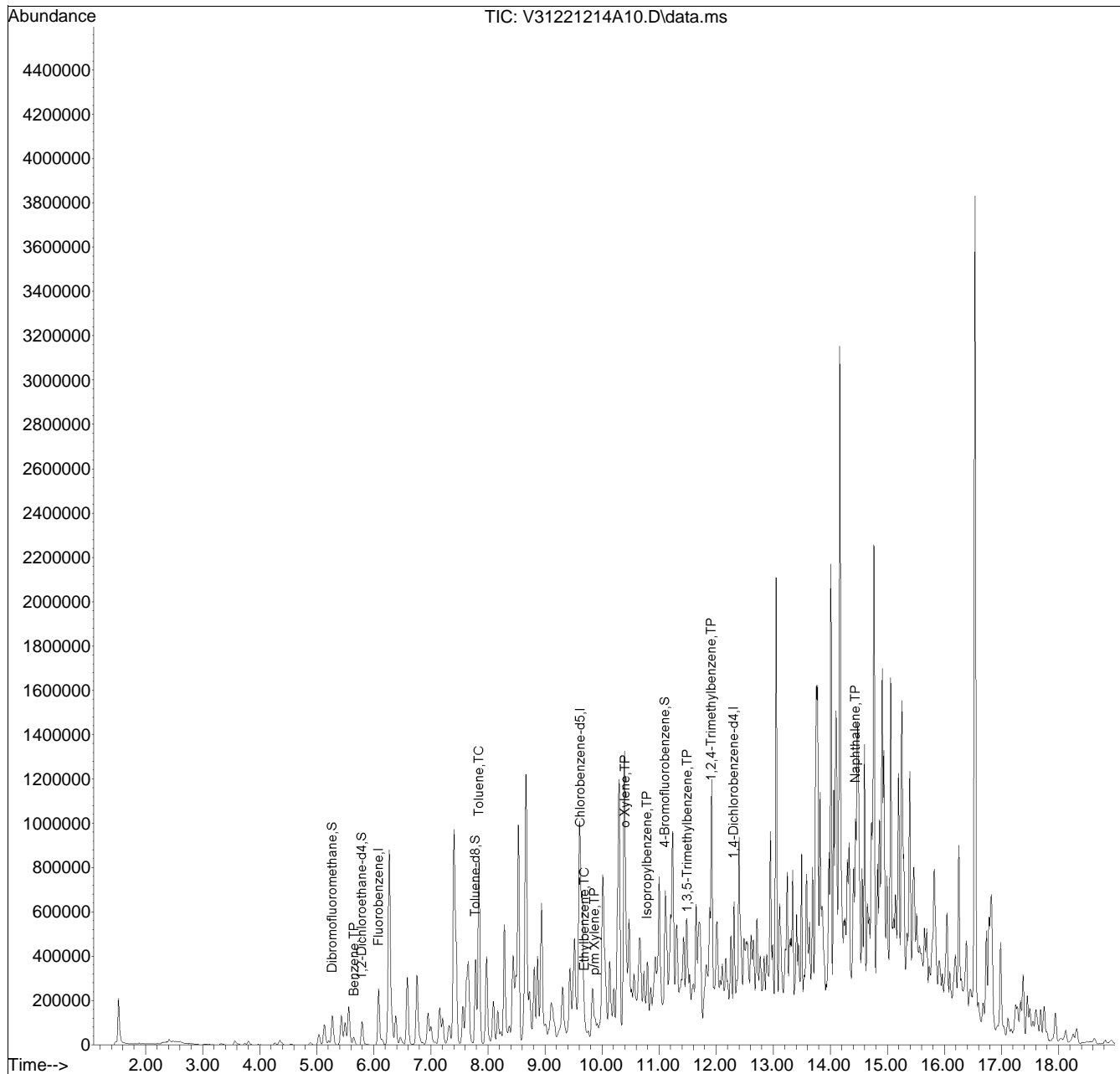


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A10.D
Acq On : 14 Dec 2022 11:22 am
Operator : VOA131:JIC
Sample : L2269124-10,31H,4.40,5,0.100,,A,R2F
Misc : WG1723588,ICAL19531
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 14 13:26:39 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

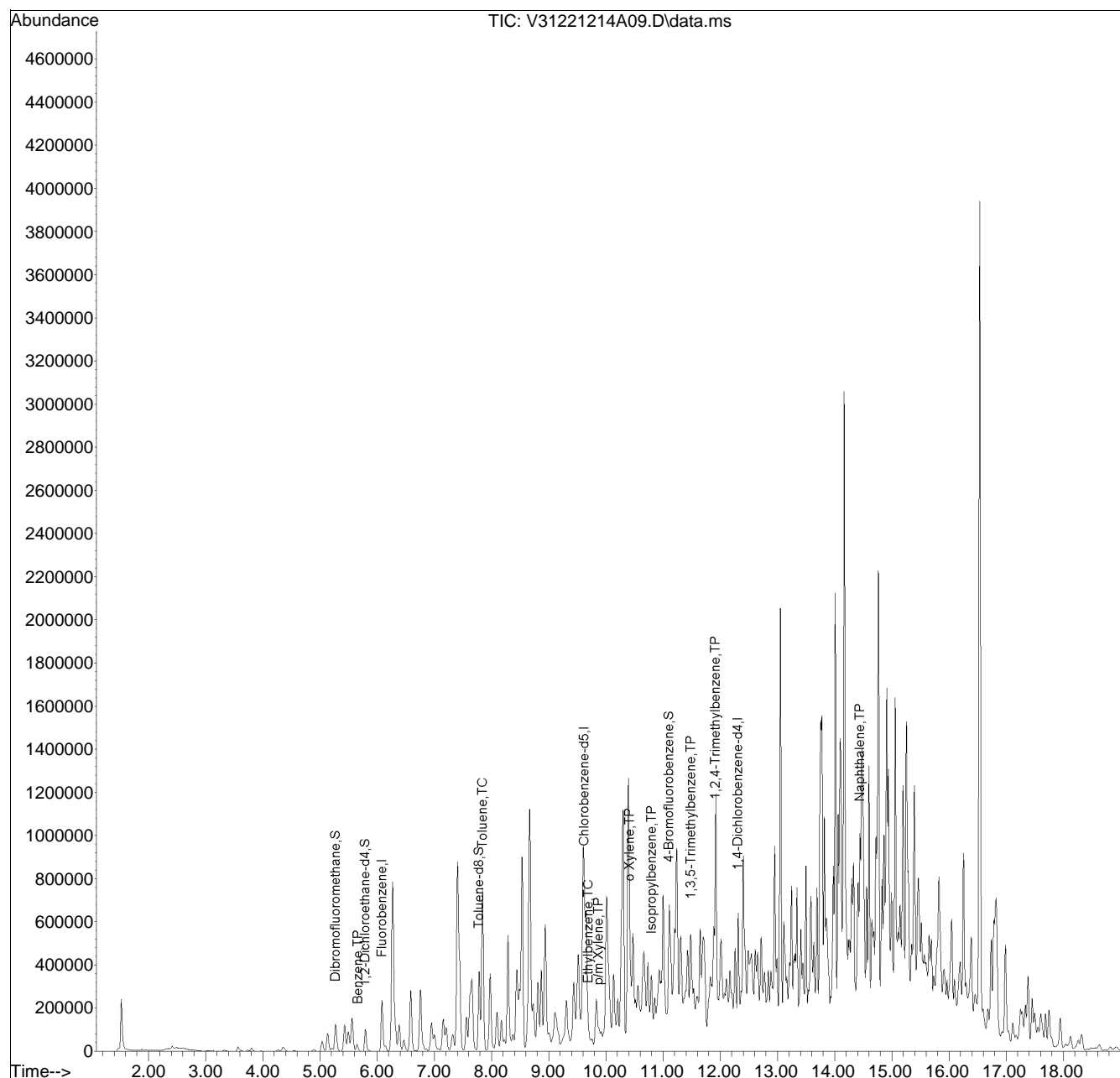


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A09.D
 Acq On : 14 Dec 2022 10:59 am
 Operator : VOA131:JIC
 Sample : L2269124-11,31H,4.47,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 14 13:26:12 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

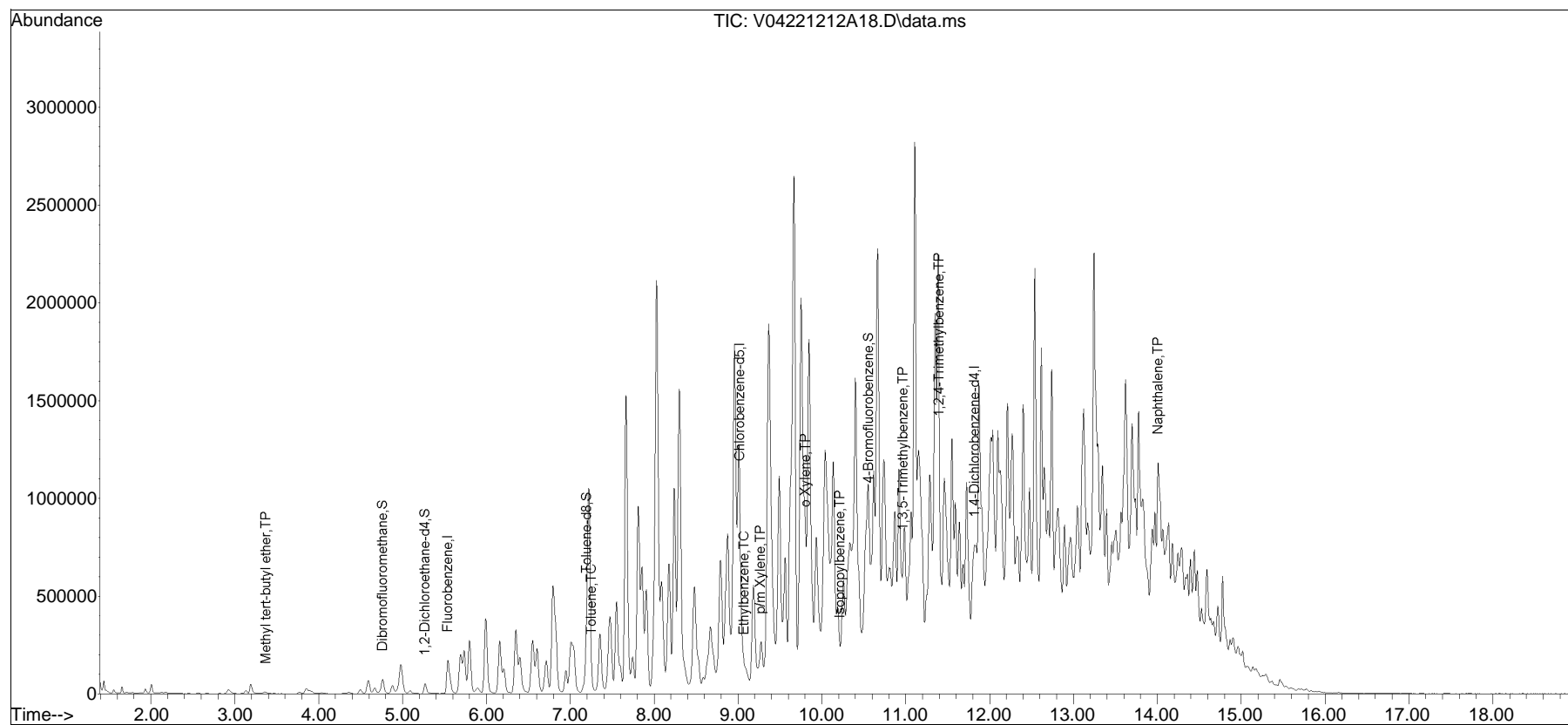


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\221212A\
Data File : V04221212A18.D
Acq On : 12 Dec 2022 6:00 pm
Operator : VOA104:NLK
Sample : L2269124-13,31,4.63,5,,B,R2F
Misc : WG1722715,ICAL19471
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 13 11:44:38 2022
Quant Method : I:\VOLATILES\VOA104\2022\221212A\V104_221109N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Nov 10 09:20:34 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04221212A01.D•

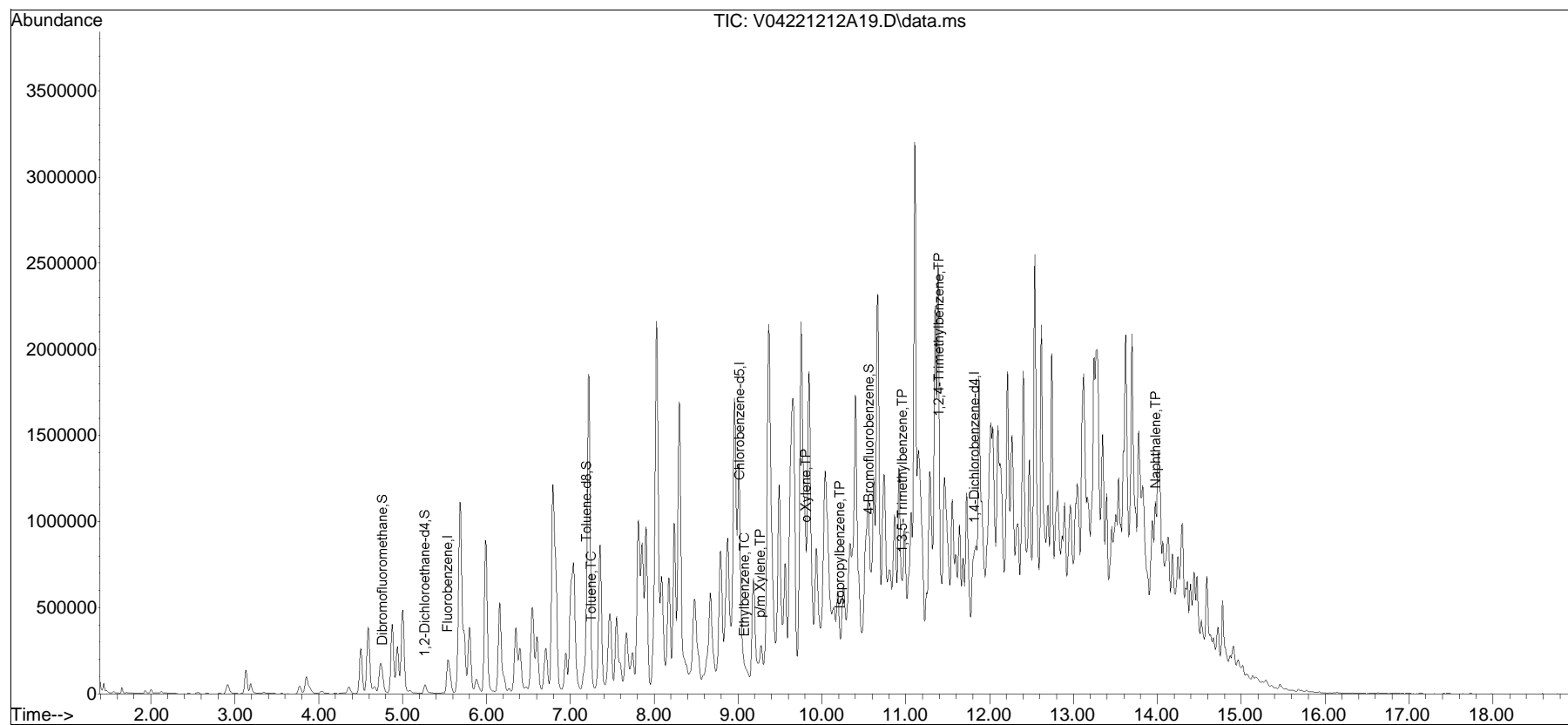


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\221212A\
Data File : V04221212A19.D
Acq On : 12 Dec 2022 6:26 pm
Operator : VOA104:NLK
Sample : L2269124-14,31,4.59,5,,B,R2F
Misc : WG1722715,ICAL19471
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 13 11:44:55 2022
Quant Method : I:\VOLATILES\VOA104\2022\221212A\V104_221109N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Nov 10 09:20:34 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04221212A01.D•





ANALYTICAL REPORT

Lab Number:	L2269475
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269475-01	GPR1101-01-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:00	12/09/22
L2269475-02	GPR1101-02-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:10	12/09/22
L2269475-03	GPR1101-03-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:20	12/09/22
L2269475-04	GPR1101-04-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:30	12/09/22
L2269475-05	GPR1101-05-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:40	12/09/22
L2269475-06	TB-221209		PHILADELPHIA, PA	12/09/22 00:00	12/09/22
L2269475-07	FB-221209		PHILADELPHIA, PA	12/09/22 11:00	12/09/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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

L2269475-06: A sample identified as "TB-221209" was listed on the Chain of Custody, but not received. This was verified by the client.

L2269475-07: A sample identified as "FB-221209" was listed on the Chain of Custody, but not received. This was verified by the client.

Volatile Organics

L2269475-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (212%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2269475-02: 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.

L2269475-02: 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.

L2269475-03: 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.

L2269475-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (170%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

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: 12/16/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:54
 Analyst: JIC
 Percent Solids: 70%

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	1
Benzene	0.10		mg/kg	0.047	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.093	0.024	1
Toluene	0.27		mg/kg	0.093	0.051	1
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	1
Ethylbenzene	0.055	J	mg/kg	0.093	0.013	1
p/m-Xylene	0.36		mg/kg	0.19	0.052	1
o-Xylene	0.083	J	mg/kg	0.093	0.027	1
Xylenes, Total	0.44	J	mg/kg	0.093	0.027	1
Isopropylbenzene	3.9		mg/kg	0.093	0.010	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	0.40		mg/kg	0.19	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	212	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 19:44
 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	0.15	0.015	1
Benzene	0.080		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.074	0.019	1
Toluene	0.20		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.16		mg/kg	0.074	0.010	1
p/m-Xylene	0.64		mg/kg	0.15	0.041	1
o-Xylene	0.12		mg/kg	0.074	0.021	1
Xylenes, Total	0.76		mg/kg	0.074	0.021	1
Isopropylbenzene	0.39		mg/kg	0.074	0.0080	1
1,3,5-Trimethylbenzene	0.064	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 13:40
 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	0.0029	0.00030	1
Benzene	0.00043	J	mg/kg	0.00074	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0012	J	mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00043	1
Ethylbenzene	0.00082	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.010		mg/kg	0.0029	0.00082	1
o-Xylene	0.0039		mg/kg	0.0015	0.00043	1
Xylenes, Total	0.014		mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.045		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.00082	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0037		mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03
 Client ID: GPR1101-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:20
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:31
 Analyst: JIC
 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	0.20	0.020	1
Benzene	0.022	J	mg/kg	0.050	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.10	0.026	1
Toluene	0.30		mg/kg	0.10	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.050	0.029	1
Ethylbenzene	0.047	J	mg/kg	0.10	0.014	1
p/m-Xylene	0.075	J	mg/kg	0.20	0.056	1
o-Xylene	0.066	J	mg/kg	0.10	0.029	1
Xylenes, Total	0.14	J	mg/kg	0.10	0.029	1
Isopropylbenzene	1.1		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	0.70		mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	170	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D2
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 14:03
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

1,2,4-Trimethylbenzene	51.		mg/kg	1.6	0.26	10
------------------------	-----	--	-------	-----	------	----

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 20:36
 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	0.31	0.031	2
Benzene	0.23		mg/kg	0.078	0.026	2
1,2-Dichloroethane	ND		mg/kg	0.16	0.040	2
Toluene	0.29		mg/kg	0.16	0.085	2
1,2-Dibromoethane	ND		mg/kg	0.078	0.046	2
Ethylbenzene	0.30		mg/kg	0.16	0.022	2
p/m-Xylene	1.6		mg/kg	0.31	0.087	2
o-Xylene	1.1		mg/kg	0.16	0.045	2
Xylenes, Total	2.7		mg/kg	0.16	0.045	2
Isopropylbenzene	1.9		mg/kg	0.16	0.017	2
1,3,5-Trimethylbenzene	21.		mg/kg	0.31	0.030	2
1,2,4-Trimethylbenzene	48.	E	mg/kg	0.31	0.052	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05
 Client ID: GPR1101-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:40
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:08
 Analyst: JIC
 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	0.0024	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	0.0012	J	mg/kg	0.0024	0.00067	1
o-Xylene	0.00097	J	mg/kg	0.0012	0.00035	1
Xylenes, Total	0.0022	J	mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.0065		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04 Batch: WG1722718-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-04 Batch: WG1723588-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,05 Batch: WG1723589-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04 Batch: WG1722718-3 WG1722718-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1723588-3 WG1723588-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,05 Batch: WG1723589-3 WG1723589-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	95		96		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:51
 Analyst: SLR
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.5		mg/kg	0.24	0.029	1
Fluorene	3.2		mg/kg	0.24	0.023	1
Phenanthrene	10.	E	mg/kg	0.14	0.029	1
Anthracene	1.4		mg/kg	0.14	0.046	1
Pyrene	1.4		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.50		mg/kg	0.14	0.027	1
Chrysene	0.57		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.38		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.30		mg/kg	0.19	0.058	1
Indeno(1,2,3-cd)pyrene	0.23		mg/kg	0.19	0.033	1
Benzo(ghi)perylene	0.25		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	231	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01 D
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 08:28
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	12.		mg/kg	0.28	0.058	2

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:27
 Analyst: SLR
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.22		mg/kg	0.20	0.025	1
Fluorene	0.12	J	mg/kg	0.20	0.020	1
Phenanthrene	0.33		mg/kg	0.12	0.025	1
Anthracene	0.21		mg/kg	0.12	0.040	1
Pyrene	0.48		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.066	J	mg/kg	0.12	0.023	1
Chrysene	0.20		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.11	J	mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.11	J	mg/kg	0.16	0.050	1
Indeno(1,2,3-cd)pyrene	0.086	J	mg/kg	0.16	0.029	1
Benzo(ghi)perylene	0.18		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03
 Client ID: GPR1101-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:20
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:03
 Analyst: SLR
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.37		mg/kg	0.22	0.027	1
Fluorene	0.53		mg/kg	0.22	0.022	1
Phenanthrene	1.2		mg/kg	0.13	0.027	1
Anthracene	0.22		mg/kg	0.13	0.044	1
Pyrene	0.32		mg/kg	0.13	0.022	1
Benzo(a)anthracene	0.16		mg/kg	0.13	0.025	1
Chrysene	0.18		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	0.17		mg/kg	0.13	0.038	1
Benzo(a)pyrene	0.14	J	mg/kg	0.18	0.055	1
Indeno(1,2,3-cd)pyrene	0.12	J	mg/kg	0.18	0.031	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D2
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 12:34
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	40.		mg/kg	3.0	0.62	25

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 08:52
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	1.0	0.12	5
Fluorene	17.		mg/kg	1.0	0.098	5
Phenanthrene	46.	E	mg/kg	0.61	0.12	5
Anthracene	6.9		mg/kg	0.61	0.20	5
Pyrene	8.3		mg/kg	0.61	0.10	5
Benzo(a)anthracene	1.3		mg/kg	0.61	0.11	5
Chrysene	2.7		mg/kg	0.61	0.10	5
Benzo(b)fluoranthene	0.67		mg/kg	0.61	0.17	5
Benzo(a)pyrene	0.60	J	mg/kg	0.81	0.25	5
Indeno(1,2,3-cd)pyrene	0.26	J	mg/kg	0.81	0.14	5
Benzo(ghi)perylene	0.50	J	mg/kg	0.81	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	38		30-120
4-Terphenyl-d14	35		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05
 Client ID: GPR1101-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:40
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:15
 Analyst: SLR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.098	J	mg/kg	0.20	0.024	1
Fluorene	0.081	J	mg/kg	0.20	0.019	1
Phenanthrene	0.30		mg/kg	0.12	0.024	1
Anthracene	0.24		mg/kg	0.12	0.039	1
Pyrene	0.80		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.15		mg/kg	0.12	0.022	1
Chrysene	0.34		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.18		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.20		mg/kg	0.16	0.048	1
Indeno(1,2,3-cd)pyrene	0.13	J	mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.32		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/11/22 09:26
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1721610-1					
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
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	91		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1721610-2 WG1721610-3								
Naphthalene	82		76		40-140	8		50
Fluorene	86		80		40-140	7		50
Phenanthrene	78		75		40-140	4		50
Anthracene	82		77		40-140	6		50
Pyrene	87		83		35-142	5		50
Benzo(a)anthracene	85		80		40-140	6		50
Chrysene	83		79		40-140	5		50
Benzo(b)fluoranthene	92		86		40-140	7		50
Benzo(a)pyrene	93		86		40-140	8		50
Indeno(1,2,3-cd)pyrene	99		93		40-140	6		50
Benzo(ghi)perylene	86		81		40-140	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	117		23-120
2-Fluorobiphenyl	98		90		30-120
4-Terphenyl-d14	90		87		18-120



METALS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	379		mg/kg	2.77	0.148	1	12/12/22 21:10	12/13/22 16:12	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02

Date Collected: 12/09/22 10:10

Client ID: GPR1101-02-SS01

Date Received: 12/09/22

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	380		mg/kg	2.44	0.131	1	12/12/22 21:10	12/13/22 16:17	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03

Date Collected: 12/09/22 10:20

Client ID: GPR1101-03-SS01

Date Received: 12/09/22

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	396		mg/kg	2.56	0.137	1	12/12/22 21:10	12/13/22 16:22	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04

Date Collected: 12/09/22 10:30

Client ID: GPR1101-04-SS01

Date Received: 12/09/22

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	99.4		mg/kg	2.42	0.130	1	12/12/22 21:10	12/13/22 16:27	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05

Date Collected: 12/09/22 10:40

Client ID: GPR1101-05-SS01

Date Received: 12/09/22

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	169		mg/kg	2.32	0.124	1	12/12/22 21:10	12/13/22 16:32	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

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): 01-05 Batch: WG1721903-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/12/22 21:10	12/13/22 13:50	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1721903-2 SRM Lot Number: D116-540								
Lead, Total	89		-		83-117	-		



Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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: WG1721903-3 QC Sample: L2269449-01 Client ID: MS Sample												
Lead, Total	1.99J	42.2	41.2	98		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269475

Report Date: 12/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1721903-4 QC Sample: L2269449-01 Client ID: DUP Sample						
Lead, Total	1.99J	3.41J	mg/kg	NC		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22**SAMPLE RESULTS**

Lab ID: L2269475-01

Date Collected: 12/09/22 10:00

Client ID: GPR1101-01-SS01

Date Received: 12/09/22

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	69.9		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02

Date Collected: 12/09/22 10:10

Client ID: GPR1101-02-SS01

Date Received: 12/09/22

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	79.6		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03

Date Collected: 12/09/22 10:20

Client ID: GPR1101-03-SS01

Date Received: 12/09/22

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	73.4		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22**SAMPLE RESULTS**

Lab ID: L2269475-04

Date Collected: 12/09/22 10:30

Client ID: GPR1101-04-SS01

Date Received: 12/09/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22**SAMPLE RESULTS**

Lab ID: L2269475-05

Date Collected: 12/09/22 10:40

Client ID: GPR1101-05-SS01

Date Received: 12/09/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269475

Report Date: 12/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1722355-1 QC Sample: L2268495-01 Client ID: DUP Sample						
Solids, Total	90.8	84.1	%	8		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12162215:10
Lab Number: L2269475
Report Date: 12/16/22

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(*)
L2269475-01A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-01B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-01C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-01E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-01F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-02A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2269475-02B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260H(14),PA-8260HLW(14)
L2269475-02C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260H(14),PA-8260HLW(14)
L2269475-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-02E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-02F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-03A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-03B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-03C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-03E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-03F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-04A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-04B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-04C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-04E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12162215:10
Lab Number: L2269475
Report Date: 12/16/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269475-04F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-05A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-05B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-05C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-05E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-05F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

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-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



Westborough, 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 #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1743~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalena using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 12/9/22

ALPHA Job #: L2269475

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

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08618

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

These samples have been Previously analyzed by Alpha

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead	Shortlist 1-6	Other Analytes										Sample Specific Comments	TOTAL # BOTTLES		
		Date	Time							1	2	3	4	5	6	7	8	9	10			11	12
69475-01	GPR1101-01-SS01	12/9	1000	S	TS	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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	GPR1101-02-SS01		1040	S		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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
- 03	GPR1101-03-SS01		1020	S		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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	GPR1101-04-SS01		1030	S		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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
- 05	GPR1101-05-SS01		1040	S		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
- 06	TB-221209		-	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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
- 07	FB-221209		1100	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

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		
69475-01	GPR1101-01-SS01	12/9	1000	S	TS
- 02	GPR1101-02-SS01		1040	S	
- 03	GPR1101-03-SS01		1020	S	
- 04	GPR1101-04-SS01		1030	S	
- 05	GPR1101-05-SS01		1040	S	
- 06	TB-221209		-	W	
- 07	FB-221209		1100	W	

Container Type: G G G - - - - -
 Preservative: F A A - - - - -

APAL
 12/10/22
 0140
 12/10/22
 0140

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/9/2008	<i>[Signature]</i>	12/9/22
<i>[Signature]</i>	12/9/22	<i>[Signature]</i>	12/9/22
<i>[Signature]</i>	12/9/22	<i>[Signature]</i>	12/9/22

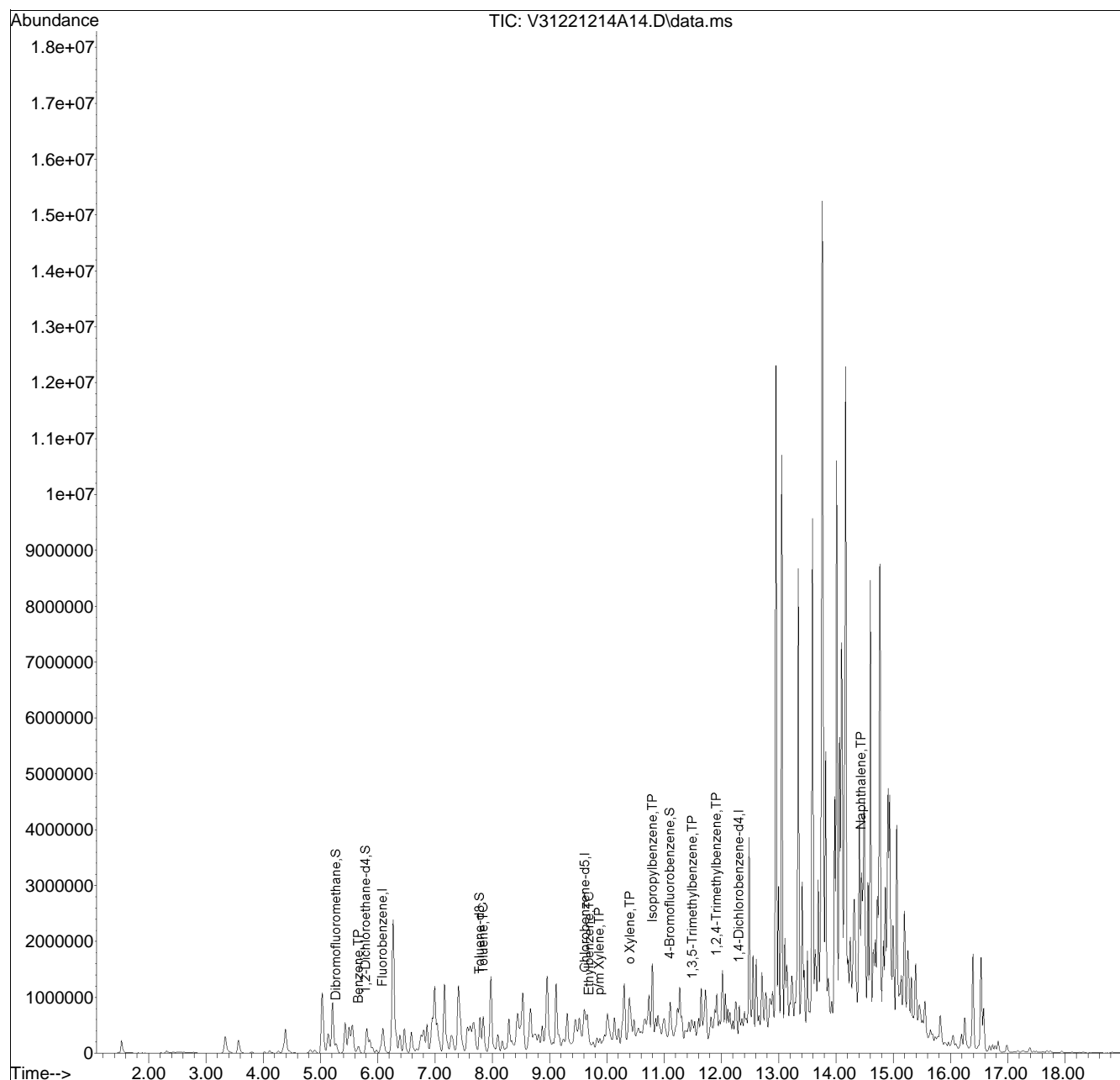
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A14.D
 Acq On : 14 Dec 2022 12:54 pm
 Operator : VOA131:JIC
 Sample : L2269475-01,31H,4.99,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 14 13:48:04 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

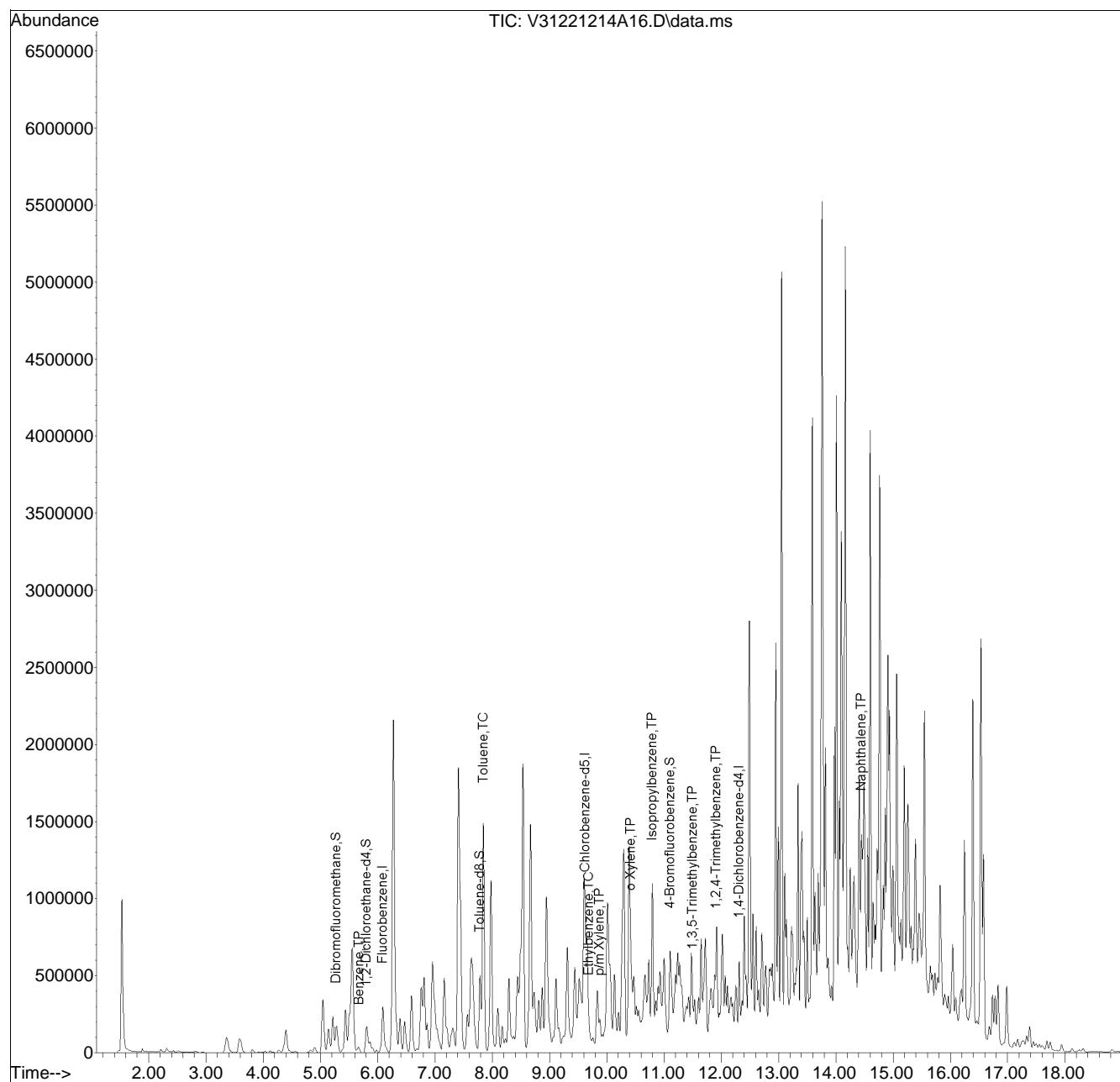


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A16.D
 Acq On : 14 Dec 2022 01:40 pm
 Operator : VOA131:AJK
 Sample : L2269475-02,31,4.27,5,,C,R2F
 Misc : WG1723589,ICAL19531
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 14 23:30:36 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

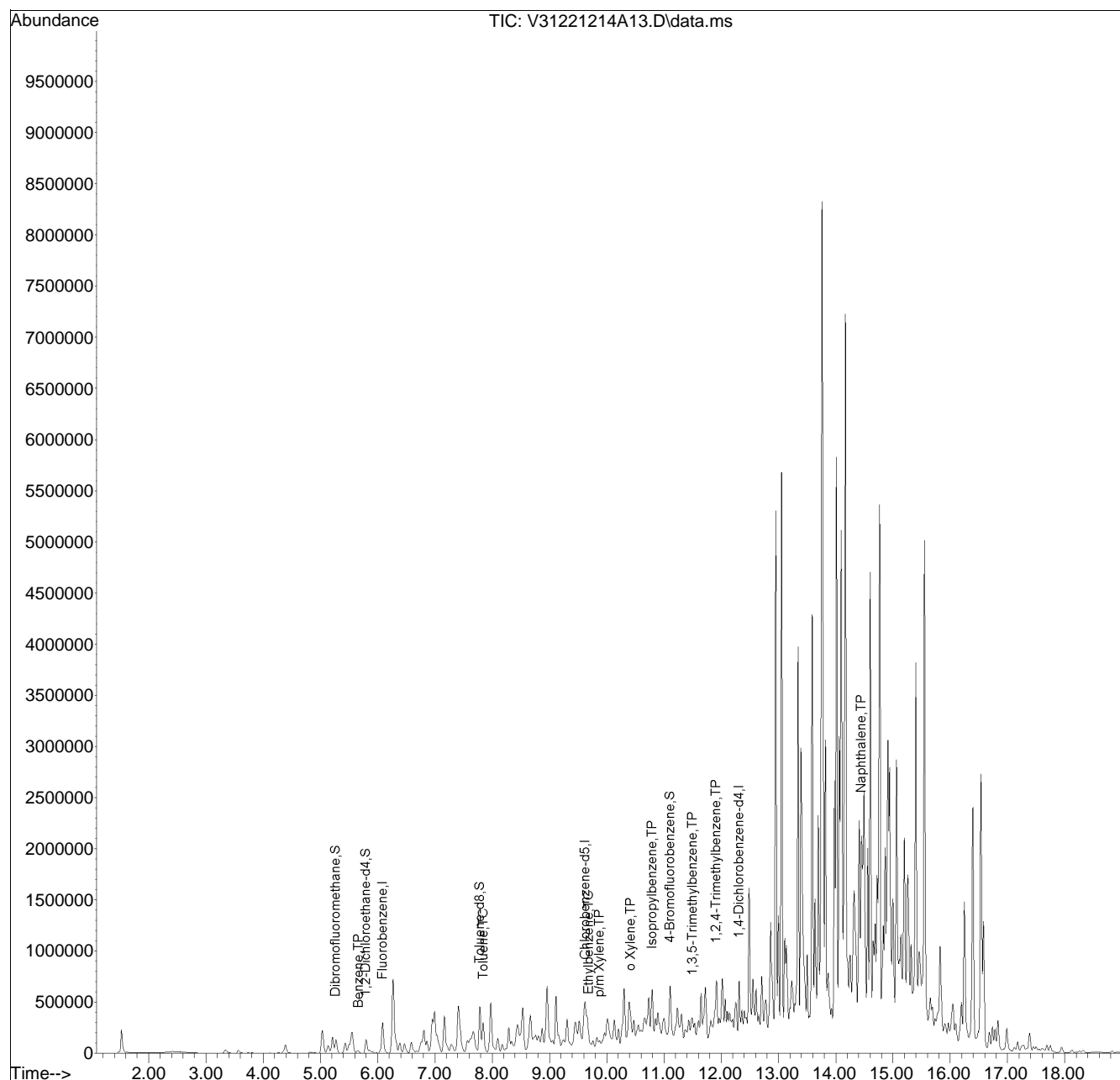


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A13.D
 Acq On : 14 Dec 2022 12:31 pm
 Operator : VOA131:JIC
 Sample : L2269475-03,31H,4.18,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 14 13:28:01 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•



**Bulk Product Movement, Scrap
Log, and Waste Disposal
Documentation (Tank Group 06)**

WBB/14

769349

91027

0091027-0A

Bill of Lading (Page 1 of 2)

DOCUMENT # 91027-8A

TO
Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2169

FROM
Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION
VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a)1241
<i>Ticket 71433</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 6.1(i) (BENZENE) PROFILE: 989843LA	CM	15.15	BT
		IM CONTAINER# EPIU225120			
		RAIL CAR# EPIX91027			
		ERG# 171 H039		NA	

30360

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC	Carrier: CSX Railroad Corp
Per: <i>Belinda Spicic</i> Date: <i>9/13/22</i>	Per: <i>Luis Castro</i> Date: <i>9/14/22</i>

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (a) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Belinda Spicic</i>	Date: <i>10/4/22</i>

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91027-6A

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC <i>Inc</i>
Street: 7170 JOHN BRANNON ROAD
EPA ID: LA0000777201
City/State/Zip: SULPHUR LA 70865
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: <i>Kellee Walsh</i>	Date: <i>10-4-22</i>

Handwritten text at the top right of the page.

0421
11/11/00
11/11/00
11/11/00

11/11/00
11/11/00
11/11/00

11/11/00

11/11/00

Handwritten calculation:
64260
3440

30820

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 76-13019

WEIGHED BY _____

103375
0091087-06 169358
Bill of Lading (Page 1 of 2)

DOCUMENT # 91027-8B

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD00077201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049701 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Telnet 71434</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UGM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9, III (BENZENE) PROFILE: 869843LA	CM	17.12	8T
		IM CONTAINER# EPIU225170			
		RAIL CAR# EPIX91027			
		ERG# 171 H039		NH	

34240

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC	Carrier: CSX Railroad Corp
Per: <i>[Signature]</i>	Per: <i>Luis Castro</i>
Date: <i>9/13/22</i>	Date: <i>9/14/22</i>

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (19) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>[Signature]</i>	Date: <i>10/5/22</i>

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91027-8B

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per: .	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: <i>[Signature]</i>	Date: 10.5.22

277000000

10/10/00
10/10/00
10/10/00

10/10/00
10/10/00
10/10/00
10/10/00
10/10/00

68140
24440

33700

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 10/10/00

WEIGHED BY _____

052109

00910276C

Bill of Lading (Page 1 of 2)

769353

DOCUMENT# 91027-6C

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 583-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049781 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(d) 1241
Tolent 9/13/22

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9.II (BENZENE) PROFILE: 888843LA	CM	16.35	BT
		IM CONTAINER# EPIU226315			
		RAIL CAR# EPX01027			
		ERG# 171 H039		NA	

32700

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC *on behalf of* Carrier: CSX Railroad Corp

Per: *Carrie Embodieux* Date: *9/13/22* Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" in proper place to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Carrie Embodieux* Date: *10-4-22*

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 81027-8C

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2168

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 048791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1624

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 338-2189	
Acknowledgement of Receipt	
Per: <i>J-R-S</i>	Date: 10-4-22

EPH005513

TO: [Faint text]
FROM: [Faint text]
DATE: [Faint text]

[Faint text]

[Faint text]

[Faint text]

61360
2480

32680

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # _____

WEIGHED BY _____

1053314
0091027-6D
Bill of Lading (Page 1 of 2)

769357

DOCUMENT# 91027-6D

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 281.4(a) 1241

Telco 91436

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9.III (BENZENE) PROFILE: 869843LA	CM	20.1	8T
		IM CONTAINER# EPIU225011			
		RAIL CAR# EPX91027			
		ERG# 171 H039		10H	

40200

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC on behalf of PES	Carrier: CSX Railroad Corp
Per: Carrie Embocleaux	Date: 9/13/22
Per: Luis Castro	Date: 9/14/22

Mark with "X" or "RQ" (if appropriate) to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201 (a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: Carrie Embocleaux Date: 10-5-22

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 81027-8D

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 048791 098
City/State/Zip: PHILADELPHIA, PA 19146
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: <i>Kevin Lortigue Jr</i>	Date: <i>10-5-22</i>

ER14 231011

RECEIVED
DATE: 11/14/01
BY: [illegible]

WEIGHT: [illegible]
[illegible]

[illegible]
[illegible]

73920
34320

39600

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # _____

WEIGHED BY _____

W56204

0091027-6E

269360

Bill of Lading (Page 1 of 2)

DOCUMENT # 91027-6E

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC

Street: 7170 JOHN BRANNON ROAD

EPA ID: LAD000777201

City/State/Zip: SULPHUR LA 70665

Phone: (337) 583-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Street: 3144 PASSYUNKAVE

EPA ID: PAD 049791 088

City/State/Zip: PHILADELPHIA, PA 19145

Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Text 71439

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9. III (BENZENE) PROFILE: 989843LA	CM	18.13	BT
		IM CONTAINER# EPIU225145			
		RAIL CAR# EPIX91027			
		ERG# 171 H039		NH	

38260

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another center on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC *on behalf of PES*

Carrier: CSX Railroad Corp

Per: *[Signature]* Date: *9/13/22*

Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" (appropriate) to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(e)(1) (B) of Title 49, Code of Federal Regulations, Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Carrie Embodeaux* Date: *10-5-22*

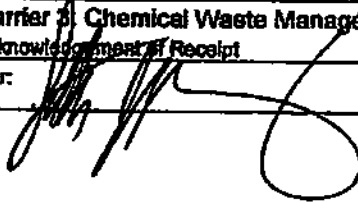
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 81027-6E

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70886
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 096
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (410) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: 	Date: 10-5-22

2-111125111

11/11/11
11/11/11
11/11/11
11/11/11

11/11/11
11/11/11
11/11/11

11/11/11
11/11/11

72700
35400
~~371540~~

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 769560

WEIGHED BY _____

Bill of Lading (Page 1 of 2)

0091027-6F 169350

DOCUMENT # 91027-6F

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
 Street: 7170 JOHN BRANNON ROAD
 EPA ID: LAD000777201
 City/State/Zip: SULPHUR LA 70865
 Phone: (337) 683-2168

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Street: 3144 PASSYUNKAVE
 EPA ID: PAD 049791 088
 City/State/Zip: PHILADELPHIA, PA 19145
 Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Tobias 11/4/28

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UCM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9. II (BENZENE) PROFILE: 899843LA	CM	21.35	8T
		IM CONTAINER# EPIU225343			
		RAIL CAR# EPX91027			
		ERG# 171 H039		NH	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Carrier: CSX Railroad Corp

Per: *Belinda Speicar* Date: *9/13/22* Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Belinda Speicar* Date: *10/4/22*

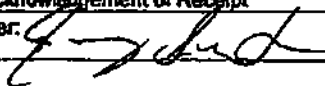
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91027-8F

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2168

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: 	Date: 12/4/22

01111 3343

10/1/80
10/1/80
10/1/80
10/1/80

10/1/80
10/1/80
10/1/80

10/1/80

10/1/80

70640
34160

42480

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 161350

WEIGHED BY _____

W. A. B.

0091069-0A
769371

91069

Bill of Lading (Page 1 of 2)

DOCUMENT # 91069-6A

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70865
Phone: (337) 583-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049781 096
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Ticket 71442</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9. III (BENZENE) PROFILE: 969843LA	CM	18.56	8T
		IM CONTAINER# EPIU225271			
		RAIL CAR# EPIX91089			
		ERG# 171 H039		NH	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under this contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC	Carrier: CSX Railroad Corp
Per: <i>Belinda Spicer</i> Date: <i>9/13/22</i>	Per: <i>Luis Castro</i> Date: <i>9/14/22</i>

Mark with "X" or "RC" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (ii) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Belinda Spicer</i>	Date: <i>10/5/22</i>

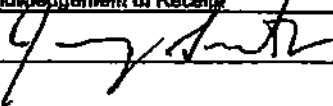
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91089-6A

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049781 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: 	Date: 10/5/22

7:14:00

Chemical Waste Management, Inc.
7170 John Brannon Road
Sulphur, LA 70665

Weight: 21340
Net Weight: 21340
Gross Weight: 21340

Lot Number: 1000000000

Material Name: 1000000000

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

70780
21340

36140

RECEIVING TICKET # 1000000000

WEIGHED BY _____

Bill of Lading (Page 1 of 2)

0091009-08

769389

DOCUMENT# 91069-6B

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
 Street: 7170 JOHN BRANNON ROAD
 EPA ID: LAD000777201
 City/State/Zip: SULPHUR LA 70885
 Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Street: 3144 PASSYUNKAVE
 EPA ID: PAD 049781 098
 City/State/Zip: PHILADELPHIA, PA 19146
 Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(f) 1241

Tides 71443

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 8. II (BENZENE) PROFILE: 989843LA	CM	16.40	BT
		IM CONTAINER# EPIU226328			
		RAIL CAR# EPIX91069			
		ERG# 171 H039		NH	

30880

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Carrier: CSX Railroad Corp

Per: *Carrie Embodeaux* Date: *9/13/22*
 Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" in appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(e)(1)(ii) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Carrie Embodeaux* Date: *10-6-22*

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91069-6B

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70695
Phone: (337) 583-2189

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 338-2189 Acknowledgement of Receipt	
Per: <i>Joseph Cox</i>	Date: <i>10/6/2022</i>

E 1140235

000000
000000
000000
000000

000000
000000
000000

000000

000000

WFO
05510
30000

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 0737

WEIGHED BY _____

053679
 Bill of Lading (Page 1 of 2)

09/10/22-6C

769387

DOCUMENT # 91089-8C

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Tilley 7/4/22</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9. III (BENZENE) PROFILE: 888843LA	CM	18.40	BT
		IM CONTAINER# EPIU225358			
		RAIL CAR# EPIX81089			
		ERG# 171 H039		NH	

36800

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC	Carrier: CSX Railroad Corp
Per: <i>Carrie Combodeaux</i> Date: <i>9/13/22</i>	Per: <i>Luis Castro</i> Date: <i>9/14/22</i>

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.204(a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exemption from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Carrie Combodeaux</i> Date: <i>10-6-22</i>	

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91089-6C

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 048791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: <i>Kevin Lartigue JR</i>	Date: <i>10-4-22</i>

EPI14025500

TO: [faded]
FROM: [faded]
DATE: [faded]

RE: [faded]
[faded]
[faded]

173000
~~23980~~
29080

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 769807

WEIGHED BY _____

Bill of Lading (Page 1 of 2)

0091069-6D

709374

DOCUMENT # 91069-8D

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1624

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Tillett 9/14/15</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RO, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 8. (II) (BENZENE) PROFILE: 688843LA	CM	18.74	BT
		1M CONTAINER# EPIU225991			
		RAIL CAR# EPX91069			
		ERG# 171 H039		NH	

39480

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC <i>on behalf of</i>	Carrier: CSX Railroad Corp
Per: <i>Carrie Embodeaux</i>	Date: <i>9/13/12</i>
Per: <i>Luis Castro</i>	Date: <i>9/14/12</i>

Mark with "X" or "NO" in column to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Carrie Embodeaux</i>	Date: <i>10-5-22</i>

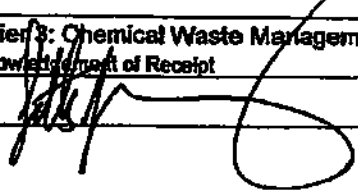
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91089-8D

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 338-2169	
Acknowledgement of Receipt	
Per: 	Date: 10-5-22

EPHWD 511

ORDER NO
EPOD: 78

TO: 053214
ORDER: 78140 LB IRONING
PLANT: 140957002

GROSS: 78140 LB IRONING
NET: 78140 LB

NET: 78140 LB

PLANT: 140957002

173940
21540

38980

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 10124

WEIGHED BY _____

Bill of Lading (Page 1 of 2)

DOCUMENT # 91089-8E

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70686
Phone: (337) 683-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19148
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Ticket 71416</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9. III (BENZENE)	CM	20.09	BT
		PROFILE: 969843LA			
		IM CONTAINER# EPIU225068			
		RAIL CAR# EPIX91089			
		ERG# 171 H039		NR	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification and the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Carrier: CSX Railroad Corp

Per: *Carrie Embodeaux* Date: *9/13/12*
 Per: *Luia Castro* Date: *9/14/12*

Mark with 'X' or 'RQ' if applicable to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (2) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulations for a particular material.

Designated Consignee: Chemical Waste Management, Inc
 Certification of receipt of materials
 Per: *Carrie Embodeaux* Date: *10-4-10-5-22*

003314
091009-06
709370

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 01069-8E

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049781 038
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc.	
LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: <i>Kevin LaFigue SR.</i>	Date: <i>10-5-22</i>

10/10/00
10/10/00
10/10/00
10/10/00
10/10/00

EP14

10/10/00
10/10/00
10/10/00
10/10/00

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

73000
30140

39520

RECEIVING TICKET # 767570

WEIGHED BY _____

Bill of Lading (Page 1 of 2)

0091069-6F

769378

DOCUMENT# 91069-6F

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 563-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Tubes 7/4/22</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9.1 (BENZENE)	CM	19.43	ST
		PROFILE: 868843LA			
		IM CONTAINER# EPIU225186			
		RAIL CAR# EPIX91069			
		ERG# 171 H039		NH	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC <i>on behalf of PES</i>	Carrier: CSX Railroad Corp
Per: <i>Carrie Combodeaux</i>	Date: <i>9/13/22</i>
Per: <i>Luis Castro</i>	Date: <i>9/14/22</i>

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (B) (4) Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exemption from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Carrie Combodeaux</i>	Date: <i>10-6-22</i>

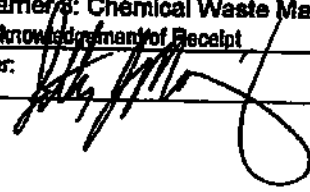
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91089-8F

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70865
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: 	Date: 10-6-22

L-114 ~~2150K~~
2510

DATE: _____
TIME: _____
BY: _____

WEIGHT: _____
VOLUME: _____
TEMP: _____

REMARKS: _____

INITIALS: _____

10000
35100

24900

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 761571

WEIGHED BY _____

1053374

0091494-5A

91494

Bill of Lading (Page 1 of 2)

269455

DOCUMENT # 91494-5A

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC

Street: 7170 JOHN BRANNON ROAD

EPA ID: LAD000777201

City/State/Zip: SULPHUR LA 70885

Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Street: 3144 PASSYUNKAVE

EPA ID: PAD 048791 088

City/State/Zip: PHILADELPHIA, PA 19145

Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Ticket 91409

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9.III (BENZENE)	CM	21.32	BT
		PROFILE: 988843LA			
		IM CONTAINER# EPIU225217			
		RAIL CAR# EPIX91494			
		ERG# 171 H039		NH	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to Us usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Carrier: CSX Railroad Corp

Per: *Carrie Embodaux* Date: *9/13/22*
 Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (ii) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Carrie Embodaux* Date: *10-6-22*

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91494-SA

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70685
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: <i>Boris Vertigan, Jr</i>	Date: <i>10-16-22</i>

11/15/00 01111

DATE: 11/15/00
TIME: 08:00
LOCATION: 11111
OPERATOR: J. J. J.

WEIGHT: 10000
TARE: 0000
NET: 10000

RECEIVED BY: J. J. J.

WEIGHED BY: J. J. J.

174000
340000
400000

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 7109403

WEIGHED BY _____

053314

0091494-5B

769740

Bill of Lading (Page 1 of 2)

DOCUMENT # 91494-5B

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC

Street: 7170 JOHN BRANNON ROAD

EPA ID: LAD000777201

City/State/Zip: SULPHUR LA 70865

Phone: (337) 583-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Street: 3144 PASSYUNKAVE

EPA ID: PAD 049791 098

City/State/Zip: PHILADELPHIA, PA 19145

Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4/a1 1241

Ticket 71408

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UCM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9.III (BENZENE)	CM	19.7	8T
		PROFILE: 988843LA			
		IM CONTAINER# EPIU225141			
		RAIL CAR# EPIX91494			
		ERG# 171 H039		NH	

39400

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Carrier: GSX Railroad Corp

Per: *[Signature]* Date: 9/14/22

Per: Luis Castro

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (ii) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exemption from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc

Certification of receipt of materials

Per: *[Signature]* Date: 11-3-22

Carrie Dubodeaux

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91494-5B

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70885
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 048791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: <i>James Phillips</i>	Date: <i>11-3-22</i>

E 114 32374

RECEIVED
DATE
BY

WEIGHED BY
DATE

WEIGHT
DESCRIPTION

72420
~~34420~~
38000

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

0 1740

RECEIVING TICKET # _____

WEIGHED BY _____

1053204

0091494-5C

Bill of Lading (Page 1 of 2)

769409

DOCUMENT# 81484-5C

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC

Street: 7170 JOHN BRANNON ROAD

EPA ID: LAD000777201

City/State/Zip: SULPHUR LA 70685

Phone: (337) 583-2159

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Street: 3144 PASSYUNKAVE

EPA ID: PAD 048791 068

City/State/Zip: PHILADELPHIA, PA 19145

Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Ticket 71409

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9.III (BENZENE)	CM	19.7	BT
		PROFILE: 689843LA			
		IM CONTAINER# EPIU225183			
		RAIL CAR# EPIX91484			
		ERG# 171 H039		NH	

39480

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with a) the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC *DA N. B. F. OF PLS*

Carrier: CSX Railroad Corp

Per: *Carme Lemboleanx* Date: *9/13/22*

Per: *Luis Castro* Date: *9/14/22*

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (ii) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc Certification of receipt of materials

Per: *Carme Lemboleanx* Date: *10-7-22*

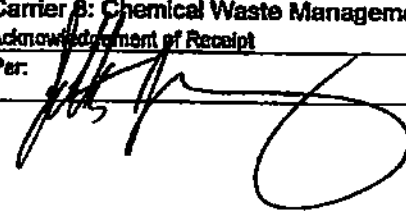
Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91484-5C

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70865
Phone: (337) 683-2189

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LAD000147272 (800) 336-2169	
Acknowledgement of Receipt	
Per: 	Date: 10-7-22

6/1/01

10/1/01
10/1/01
10/1/01
10/1/01

10/1/01
10/1/01
10/1/01
10/1/01

76640
35080

40900

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 769129
WEIGHED BY _____

1053314
Bill of Lading (Page 1 of 2)

0091494-5D

769408

DOCUMENT# 91494-5D

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC
 Street: 7170 JOHN BRANNON ROAD
 EPA ID: LAD000777201
 City/State/Zip: SULPHUR LA 70965
 Phone: (337) 583-2169

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Street: 3144 PASSYUNK AVE
 EPA ID: PAD 046791 086
 City/State/Zip: PHILADELPHIA, PA 19145
 Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Ticket 91410

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UCM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9. III (BENZENE)	CM	13.12	8T
		PROFILE: 869843LA			
		IM CONTAINER# EPIU225307			
		RAIL CAR# EPDX91494			
		ERG# 171 H039		NA	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
 Carrier: CSX Railroad Corp
 Per: Carrie Embodeaux Date: 9/13/22
 Per: Luis Castro Date: 9/14/22

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(e) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc
 Certification of receipt of materials
 Per: Carrie Embodeaux Date: 10-7-22

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91494-5D

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNK AVE
EPA ID: PAD 048791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 338-2169 Acknowledgement of Receipt	
Per: <i>Kevin Webster SR</i>	Date: <i>10-7-22</i>

11/11/2007

RECEIVED
NOV 11 2007
SULPHUR, LA
CHEMICAL WASTE MANAGEMENT, INC.

51920
33960

23960

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # _____

WEIGHED BY _____

R+769715

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number PAD049791098	2. Page 1 of 1	3. Emergency Response Phone (800)424-9300	4. Manifest Tracking Number 022754120 JJK
----------------------------------	--	-------------------	--	--

5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145 Generator's Phone: (440)228-1524	Generator's Site Address (if different than mailing address)
--	--

6. Transporter 1 Company Name CHEMICAL WASTE MANAGEMENT, INC.	U.S. EPA ID Number LA0000147272
--	------------------------------------

7. Transporter 2 Company Name	U.S. EPA ID Number
-------------------------------	--------------------

8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70685 Facility's Phone: (337)583-2169	U.S. EPA ID Number LAD000777201
--	------------------------------------

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Toled Quantity	12. Unit WL/Vol.	13. Waste Codes	
		No.	Type				
X	RG, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., 9, III, (K171) LA957146	1	CM	22 2244	T	K171	
2.		(CH)					
3.							
4.							

14. Special Handling Instructions and Additional Information ERG# 171 IN CASE OF EMERGENCY CONTACT CHEMTREC 800-424-9300 (WM CONTRACT #CCN24117) DISCREPANCIES CONTACT: REMANIFEST FROM BOL# 87494-5E1769715
--

15. GENERATOR/SOFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Officer's Printed/Typed Name Pandra Novez Fox	Signature Patrick Davis	Month 9	Day 14	Year 22
--	----------------------------	------------	-----------	------------

16. International Shipments Import to U.S. Export from U.S. Port of entry/exit: Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name Jeremy Pete	Signature	Month 11	Day 12	Year 22
---	-----------	-------------	-----------	------------

Transporter 2 Printed/Typed Name	Signature	Month	Day	Year
----------------------------------	-----------	-------	-----	------

18. Discrepancy
18a. Discrepancy Indication Space Quantity Type Residue Partial Rejection Full Rejection

18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. H132	2.	3.	4.
---------	----	----	----

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a Printed/Typed Name Delonda Spicer	Signature B Spicer	Month 11	Day 12	Year 22
--	-----------------------	-------------	-----------	------------

152314

U4444-DE
11/01/15

Bill of Lading (Page 1 of 2)

DOCUMENT# 91494-5E

TO

Consignee: CHEMICAL WASTE MANAGEMENT INC

Street: 7170 JOHN BRANNON ROAD

EPA ID: LAD000777201

City/State/Zip: SULPHUR LA 70685

Phone: (337) 583-2189

FROM

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Street: 3144 PASSYUNKAVE

EPA ID: PAD 049791 098

City/State/Zip: PHILADELPHIA, PA 19145

Phone: (440) 228-1524

ADDITIONAL INFORMATION

VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241

Tanks 7141

SHIPPER'S INSTRUCTIONS

Remitted ch 022754/DOJJK 11/01/22

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UCM
X	1	RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. 9.1B (BENZENE) 4880	CM	22.44	8T
		PROFILE: 988843LA			
		IM CONTAINER# EPIU225321			
		RAIL CAR# EPIX91494			
		ERG# 171 H039		NH	

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination. If on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC

Carrier: CSX Railroad Corp

Per: Belinda Spicer Date: 9/13/22

Per: Luis Castro Date: 9/14/22

Mark with "X" or "RQ" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1)(B) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc

Certification of receipt of materials

Per: Belinda Spicer Date: 11/2/22

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91494-5E

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC <i>Inc</i>
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70665
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 088
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company Acknowledgement of Receipt	
Per: _____	Date: _____
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 336-2169 Acknowledgement of Receipt	
Per: <i>Brian Anderson</i>	Date: <i>11-2-99</i>

E P 14 275 21

UNIVERSITY OF MISSISSIPPI
SCHOOL OF FORESTRY
1000 UNIVERSITY BLVD
MURFREESBORO, MS 38857

UNIVERSITY OF MISSISSIPPI
SCHOOL OF FORESTRY
1000 UNIVERSITY BLVD
MURFREESBORO, MS 38857

177060
33900

443160

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 717115
WEIGHED BY _____

[Handwritten signature]

091494-5F
709400

Bill of Lading (Page 1 of 2)

DOCUMENT # 91494-5F

TO	
Consignee: CHEMICAL WASTE MANAGEMENT INC	
Street: 7170 JOHN BRANNON ROAD	
EPA ID: LAD000777201	
City/State/Zip: SULPHUR LA 70865	
Phone: (337) 583-2168	

FROM	
Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC	
Street: 3144 PASSYUNKAVE	
EPA ID: PAD 048791 088	
City/State/Zip: PHILADELPHIA, PA 19145	
Phone: (440) 228-1524	

ADDITIONAL INFORMATION
VRE TANK BOTTOMS EXCLUDED FROM THE DEFINITION OF SOLID WASTE UNDER 40CFR 261.4(a) 1241
<i>Ticket 71412</i>

SHIPPER'S INSTRUCTIONS

HAZARDOUS MATERIAL	NO. SHIPPING UNITS	DESCRIPTION OF ARTICLES SPECIAL MARKS & EXCEPTIONS	Type	Volume	UOM
X	1	RG, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE. SOLID. N.O.S. 9. II (BENZENE)	CM	16.28	BT
		PROFILE: 686843LA			
		IM CONTAINER# EPIU225356			
		RAIL CAR# EPIX81494			
		ERG# 171 H038		NH	

32-320

RECEIVED subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of packages unknown), marked, consigned and destined as indicated above which said carrier (the word carrier being understood through this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to the usual place of delivery as said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property, over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions.

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC <i>on behalf of PES</i>	Carrier: CSX Railroad Corp
Per: <i>[Signature]</i> Date: <i>9/13/22</i>	Per: <i>Luis Castro</i> Date: <i>9/14/22</i>

Mark with "X" or "NA" if appropriate to designate Hazardous Materials Substances as defined in the Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading 172.201(a)(1) (b) of Title 49, Code of Federal Regulations. Also, when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from the requirement is provided in the Regulation for a particular material.

Designated Consignee: Chemical Waste Management, Inc	Certification of receipt of materials
Per: <i>Carrie Dubokan</i> Date: <i>10-6-22</i>	

Bill of Lading (Continuation Sheet) 2 of 2

DOCUMENT# 91494-5F

TO _____ FROM _____

Consignee: CHEMICAL WASTE MANAGEMENT INC
Street: 7170 JOHN BRANNON ROAD
EPA ID: LAD000777201
City/State/Zip: SULPHUR LA 70886
Phone: (337) 583-2169

Shipper: PHILADELPHIA ENERGY SOLUTIONS R&M LLC
Street: 3144 PASSYUNKAVE
EPA ID: PAD 049791 098
City/State/Zip: PHILADELPHIA, PA 19145
Phone: (440) 228-1524

Carrier 2: BNSF Railway Company	
Acknowledgement of Receipt	
Per:	Date:
Carrier 3: Chemical Waste Management, Inc. LA0000147272 (800) 338-2169	
Acknowledgement of Receipt	
Per:	Date:

Handwritten number: 71100-15-4

10000
10000
10000
10000

10000
10000
10000

10000

10000

Handwritten calculation:
65000
34800

30200

CHEMICAL WASTE MANAGEMENT, INC.
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665

RECEIVING TICKET # 71094100
WEIGHED BY _____

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
5120	Tank 272	58,440	28,150	15.15	15.06	91027	A	-8.9
5170	Tank 272	62,380	38,150	12.12	16.85	91027	B	-11.9
5315	Tank 272	62,640	28,150	17.25	16.34	91027	C	-6.8
5011	Tank 272	68,500	28,300	20.10	19.80	91027	D	-3.9
5145	Tank 272	66,500	28,250	19.13	18.67	91027	E	-4.9
5343	Tank 272	70,850	28,150	21.35	21.24	91027	F	-2.7
5271	Tank 272	65,240	28,150	18.55	18.22	91069	A	-5.5
5328	Tank 272	61,800	28,150	16.83	15.03	91069	B	-7.2
5358	Tank 272	67,800	28,150	19.83	19.54	91069	C	-4.2
5391	Tank 272	67,620	28,150	19.74	19.49	91069	D	-4.3
5058	Tank 272	68,320	28,150	20.09	19.76	91069	E	-3.9
5186	Tank 272	67,000	28,150	19.43	17.46	91069	F	-4.6
5217	Tank 272	70,780	28,150	21.32	20.00	91494	A	-2.7
5141	Tank 272	70,400	28,150	21.13	19.00	91494	B	-2.9
5193	Tank 272	70,500	28,150	21.18	20.48	91494	C	-2.8
5307	Tank 272	54,380	28,150	13.12	11.98	91494	D	-10.9
5321	Tank 272	73,020	28,150	22.44	21.58	91494	E	-1.6
5356	Tank 272	60,700	28,150	16.28	15.45	91494	F	-7.7
				334.96	325.95			-97
Running Total (tons)				19,144.88	19,128.20			

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
5284	Tank 272	79,340	37,600	20.87		91405	A	-3.1
5281	Tank 272	76,460	37,600	19.43		91405	B	-4.6
5248	Tank 272	75,720	37,600	19.06		91405	C	-4.9
5154	Tank 272	71,220	37,600	16.81		91405	D	-7.2
5308	Tank 272	80,060	37,600	21.23		91405	E	-2.8
5019	Tank 272	76,980	37,600	19.69		91405	F	-4.3
				117.09	0.00			-27
Running Total (tons)				19,261.97	19,128.20			

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
5320	Tank 273	69,740	31,560	19.09		91040	A	-4.9
5019	Tank 273	71,060	31,560	19.75		91040	B	-4.3
5236	Tank 273	70,220	31,560	19.33		91040	C	-4.7
4532	Tank 273	70,500	31,560	19.47		91040	D	-4.5
5248	Tank 273	70,800	31,560	19.62		91040	E	-4.4
5295	Tank 273	69,960	31,560	19.20		91040	F	-4.8
5281	Tank 273	69,780	31,560	19.11		91405	A	-4.9
5284	Tank 273	71,800	31,560	20.12		91405	B	-3.9
5308	Tank 273	69,960	31,560	19.20		91405	C	-4.8
4683	Tank 273	70,520	31,560	19.48		91405	D	-4.5
4253	Tank 273	70,980	31,560	19.71		91405	E	-4.3
5154	Tank 273	71,220	31,560	19.83		91405	F	-4.2
				233.91				-54
Running Total (tons)				20,552.19	18,802.25			

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
4850	Tank 273	67,760	31,560	18.10		91133	A	-5.9
5279	Tank 273	69,580	31,560	19.01		91133	B	-5.0
4613	Tank 273	70,120	31,560	19.28		91133	C	-4.7
5042	Tank 273	69,880	31,560	19.16		91133	D	-4.8
5307	Tank 273	68,900	31,560	18.67		91133	E	-5.3
4608	Tank 273	70,460	31,560	19.45		91133	F	-4.6
4856	Tank 273	70,820	31,560	19.63		91090	A	-4.4
4893	Tank 273	71,100	31,560	19.77		91090	B	-4.2
5356	Tank 273	69,020	31,560	18.73		91090	C	-5.3
5369	Tank 273	68,820	31,560	18.63		91090	D	-5.4
4620	Tank 273	71,580	31,560	20.01		91090	E	-4.0
4568	Tank 273	70,500	31,560	19.47		91090	F	-4.5
5196	Tank 273	68,300	31,560	18.37		91494	A	-5.6
5319	Tank 273	70,660	31,560	19.55		91494	B	-4.5
5374	Tank 273	68,990	31,560	18.72		91494	C	-5.3
5246	Tank 273	69,500	31,560	18.97		91494	D	-5.0
5267	Tank 273	70,940	31,560	19.69		91494	E	-4.3
4713	Tank 273	70,300	31,560	19.37		91494	F	-4.6
5141	Tank 273	71,760	31,560	20.10		HKRX80023	A	-3.9
4650	Tank 273	71,760	31,560	20.10		HKRX80023	B	-3.9
5327	Tank 273	69,820	31,560	19.13		HKRX80023	C	-4.9
5217	Tank 273	70,360	31,560	19.40		HKRX80023	D	-4.6
4849	Tank 273	72,080	31,560	20.26		HKRX80023	E	-3.7
4680	Tank 273	71,680	31,560	20.06		HKRX80023	F	-3.9
				463.63				-112
Running Total (tons)				21,015.82				

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
4557	Tank 273	69,900	31,980	18.96		EPIX91032	A	-5.0
4737	Tank 273	69,800	31,700	19.05		EPIX91032	B	-5.0
4606	Tank 273	67,320	31,980	17.67		EPIX91032	C	-6.3
4800	Tank 273	69,160	31,700	18.73		EPIX91032	D	-5.3
4554	Tank 273	70,680	31,700	19.49		EPIX91032	E	-4.5
4401	Tank 273	68,980	31,980	18.50		EPIX91032	F	-5.5
4615	Tank 273	69,440	31,980	18.73		EPIX91429	A	-5.3
4484	Tank 273	71,440	31,700	19.87		EPIX91429	B	-4.1
4230	Tank 273	71,280	31,980	19.65		EPIX91429	C	-4.4
4678	Tank 273	71,280	31,700	19.79		EPIX91429	D	-4.2
4576	Tank 273	71,980	31,980	20.00		EPIX91429	E	-4.0
5132	Tank 273	70,320	31,700	19.31		EPIX91429	F	-4.7
4721	Tank 273	72,260	31,700	20.28		EPIX91086	A	-3.7
4654	Tank 273	72,500	31,700	20.40		EPIX91086	B	-3.6
4587	Tank 273	71,260	31,980	19.64		EPIX91086	C	-4.4
4389	Tank 273	71,800	31,700	20.05		EPIX91086	D	-4.0
4738	Tank 273	73,120	31,980	20.57		EPIX91086	E	-3.4
4556	Tank 273	69,660	31,980	18.84		EPIX91086	F	-5.2
4717	Tank 273	71,180	31,700	19.74		EPIX91419	A	-4.3
4633	Tank 273	71,100	31,700	19.70		EPIX91419	B	-4.3
4647	Tank 273	72,020	31,700	20.16		EPIX91419	C	-3.8
4697	Tank 273	71,240	31,700	19.77		EPIX91419	D	-4.2
4538	Tank 273	71,760	31,980	19.89		EPIX91419	E	-4.1
4749	Tank 273	70,720	31,980	19.37		EPIX91419	F	-4.6
4537	Tank 273	71,460	31,700	19.88		EPIX91484	A	-4.1
4534	Tank 273	72,010	31,700	20.16		EPIX91484	B	-3.8
4693	Tank 273	72,020	31,700	20.16		EPIX91484	C	-3.8
4544	Tank 273	71,560	31,700	19.93		EPIX91484	D	-4.1
4618	Tank 273	72,880	31,980	20.45		EPIX91484	E	-3.6
4767	Tank 273	69,980	31,980	19.00		EPIX91484	F	-5.0
4427	Tank 273	69,940	31,980	18.98		EPIX91513	A	-5.0
4429	Tank 273	73,420	31,980	20.72		EPIX91513	B	-3.3
5300	Tank 273	70,720	31,980	19.37		EPIX91513	C	-4.6
5134	Tank 273	71,100	31,700	19.70		EPIX91513	D	-4.3
4226	Tank 273	72,040	31,700	20.17		EPIX91513	E	-3.8
4790	Tank 273	69,840	31,700	19.07		EPIX91513	F	-4.9
5224	Tank 273	70,140	31,980	19.08		EPIX91451	A	-4.9
4344	Tank 273	71,560	31,980	19.79		EPIX91451	B	-4.2
5368	Tank 273	69,740	31,700	19.02		EPIX91451	C	-5.0
4038	Tank 273	71,500	31,700	19.90		EPIX91451	D	-4.1
4786	Tank 273	70,100	31,700	19.20		EPIX91451	E	-4.8
4716	Tank 273	70,580	31,700	19.44		EPIX91451	F	-4.6
				822.18				-186
		Running Total (tons)		21,374.37				

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
4258	Tank 273	71,760	31,540	20.11		EPIX91448	A	-3.9
4592	Tank 273	71,860	31,540	20.16		EPIX91448	B	-3.8
4681	Tank 273	71,860	31,540	20.16		EPIX91448	C	-3.8
4748	Tank 273	71,560	31,540	20.01		EPIX91448	D	-4.0
4012	Tank 273	72,300	31,540	20.38		EPIX91448	E	-3.6
4448	Tank 273	72,220	31,540	20.34		EPIX91448	F	-3.7
4869	Tank 273	70,840	31,540	19.65		EPIX91089	A	-4.4
5321	Tank 273	68,840	28,400	20.22		EPIX91089	B	-3.8
4890	Tank 273	72,220	31,540	20.34		EPIX91089	C	-3.7
4710	Tank 273	71,700	31,540	20.08		EPIX91089	D	-3.9
4858	Tank 273	71,860	31,540	20.16		EPIX91089	E	-3.8
4659	Tank 273	71,400	31,540	19.93		EPIX91089	F	-4.1
4688	Tank 273	70,900	31,540	19.68		EPIX91085	A	-4.3
4305	Tank 273	72,080	31,540	20.27		EPIX91085	B	-3.7
4702	Tank 273	71,800	31,540	20.13		EPIX91085	C	-3.9
4769	Tank 273	71,240	31,540	19.85		EPIX91085	D	-4.2
4581	Tank 273	72,150	31,540	20.31		EPIX91085	E	-3.7
4663	Tank 273	70,460	31,540	19.46		EPIX91085	F	-4.5
				361.24				-71
Running Total (tons)				21,735.60				

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
4822	Tank 273	72,040	31,540	20.25		EPIX91035	A	-3.8
4734	Tank 273	72,340	31,540	20.40		EPIX91035	B	-3.6
4818	Tank 273	71,860	31,540	20.16		EPIX91035	C	-3.8
4583	Tank 273	71,300	31,540	19.88		EPIX91035	D	-4.1
5179	Tank 273	72,100	31,540	20.28		EPIX91035	E	-3.7
4807	Tank 273	76,140	31,540	22.30		EPIX91035	F	-1.7
4876	Tank 273	71,200	31,540	19.83		EPIX91449	A	-4.2
4792	Tank 273	72,180	31,540	20.32		EPIX91449	B	-3.7
4719	Tank 273	69,980	31,540	19.22		EPIX91449	C	-4.8
4707	Tank 273	71,360	31,540	19.91		EPIX91449	D	-4.1
4465	Tank 273	70,880	31,540	19.67		EPIX91449	E	-4.3
4832	Tank 273	69,580	31,540	19.02		EPIX91449	F	-5.0
				241.24				-47
Running Total (tons)				21,976.84				

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
4689	Tank 273	69,620	31,540	19.04		EPIX91519	A	-5.0
4882	Tank 273	72,780	32,060	20.36		EPIX91519	B	-3.6
4781	Tank 273	68,640	31,540	18.55		EPIX91519	C	-5.5
4828	Tank 273	66,600	31,540	17.53		EPIX91519	D	-6.5
4639	Tank 273	72,440	32,060	20.19		EPIX91519	E	-3.8
5365	Tank 273	71,560	31,860	19.85		EPIX91519	F	-4.2
4479	Tank 273	70,400	31,540	19.43		EPIX91480	A	-4.6
4348	Tank 273	72,020	31,540	20.24		EPIX91480	B	-3.8
4789	Tank 273	64,420	32,060	16.18		EPIX91480	C	-7.8
4605	Tank 273	65,140	31,540	16.80		EPIX91480	F	-7.2
5193	Tank 273	71,900	31,560	20.17		EPIX91480	E	-3.8
4887	Tank 273	70,820	31,540	19.64		EPIX91480	F	-4.4
				227.98				-60
Running Total (tons)				22,204.82				

		Weight						
Container #	Origin of Waste	Gross	Tare	Net	Facility Net	Rail Car #	Railcar Position	Over/Under
5042	2-Sep	69,860	31,540	19.16		EPIX91133	A	-4.8
5279	2-Sep	70,740	31,540	19.60		EPIX91133	B	-4.4
4608	2-Sep	68,540	31,540	18.50		EPIX91133	C	-5.5
4613	Tank 273	68,960	31,540	18.71		EPIX91133	D	-5.3
5307	2-Sep	71,820	31,540	20.14		EPIX91133	E	-3.9
4778	Tank 273	70,160	31,540	19.31		EPIX91133	F	-4.7
				115.42				-29
Running Total (tons)				22,092.26				

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net Bbl's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	09.08.2022	08086-09001		2286	4283		TT	22951	78720	29760	48,960	6,739.16	160.46			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0942 HRS		
2	09.08.2022	08086-09002		2550	4290		TT	22962	77780	30040	47,740	6,571.23	156.46	96,700		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1103 HRS		
3	09.09.2022	08086-09003		2286	4283		TT	22982	80600	29760	50,840	6,997.94	166.62			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1055 HRS		
4	09.09.2022	08086-09004		2550	4290		TT	22992	73780	30040	43,740	6,020.65	143.35	94,580	191,280	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1316 HRS		
5	09.16.2022	08086-09005		2286	4290		TT	23141	75460	29700	45,760	6,298.69	149.97			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0707 HRS		
6	09.16.2022	08086-09006		2286	4290		TT	23155	75700	29700	46,000	6,331.73	150.76	91,760	91,760	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0947 HRS		
7	09.29.2022	08086-09007		2286	4290		TT	23319	75660	29700	45,960	6,326.22	150.62	45,960	45,960	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0853 HRS		
									Totals to Date			329,000	45,285.62	1,078.23	329,000	329,000						

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	10.06.2022	08086-09008		2286	4290		TT	23459	74420	29700	44,720	6,155.54	146.56			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0640 HRS		
2	10.06.2022	08086-09009		2286	4283		TT	23468	74460	29700	44,760	6,161.05	146.69	89,480	89,480	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0917 HRS		
3	10.13.2022	08086-09010		2286	4290		TT	23600	74920	29700	45,220	6,224.36	148.20			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0650 HRS		
4	10.13.2022	08086-09011		2286	4283		TT	23601	73880	29760	44,120	6,072.95	144.59	89,340	89,340	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0913 HRS		
5	10.20.2022	08086-09012		2286	4283		TT	23763	82800	29760	53,040	7,300.76	173.83			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0651 HRS		
6	10.20.2022	08086-09013		2286	4290		TT	23777	76740	29700	47,040	6,474.88	154.16	100,080	100,080	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0917 HRS		
7	10.26.2022	08086-09014		2286	4290		TT	23893	75500	29700	45,800	6,304.20	150.10			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0646 HRS		
8	10.26.2022	08086-09015		2286	4283		TT	23899	84480	29760	54,720	7,532.00	179.33			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0908 HRS		
9	10.26.2022	08086-09016		2286	4290		TT	23908	77620	29700	47,920	6,596.01	157.05	148,440		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1139 HRS		
10	10.27.2022	08086-09017		1983	4283		TT	23923	72940	29700	43,240	5,951.82	141.71	43,240		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1051 HRS		
11	10.28.2022	08086-09018		2286	4284		TT	23935	76640	29700	46,940	6,461.11	153.84			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0826 HRS		
12	10.28.2022	08086-09019		2286	4290		TT	23939	76340	29700	46,640	6,419.82	152.85	93,580	285,260	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1055 HRS		
									Totals to Date			564,160	77,654.51	1,848.92	564,160	564,160						

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	11.09.2022	08086-09020		2286	4284		TT	24117	75580	29700	45,880	6,315.21	150.36	45,880		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1524 HRS		
2	11.10.2022	08086-09021		2286	4290		TT	24141	77260	29700	47,560	6,546.46	155.87	47,560	93,440	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0806 HRS		
3	11.16.2022	08086-09022		1984	4284		TT	24236	83880	27900	55,980	7,705.44	183.46	55,980	55,980	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1227 HRS		
									Totals to Date		149,420	20,567.10	489.69	149,420	149,420							

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	12.01.2022	08086-09023	SRS2689	2286	4290		TT	24374	79220	29700	49,520	6,816.24	162.29			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0855 HRS		
2	12.01.2022	08086-09024	SRS2689	2286	4284		TT	24378	83120	29700	53,420	7,353.06	175.07	102,940	102,940	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0956 HRS		
									Totals to Date			102,940	14,169.30	337.36	102,940	102,940						

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	01.13.2023	08086-09025	SRS2713	2286	4290		TT	24712	83340	29700	53,640	7,383.34	175.79	53,640	53,640	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1050 HRS		
2	01.17.2023	08086-09026	SRS2713	2286	4284		TT	24720	77620	29700	47,920	6,596.01	157.05	47,920		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0650 HRS		MATERIAL FROM TANK 281
3	01.20.2023	08086-09027	SRS2713	2286	4290		TT	24754	89300	29700	59,600	8,203.72	195.33	59,600	107,520	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0556 HRS		MATERIAL FROM TANK 281
4	01.26.2023	08086-09027-1	SRS2713	2286	4289		TT	24785	86660	27900	58,760	8,088.09	192.57			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0700 HRS		
5	01.26.2023	08086-09028	SRS2713	2286	4290		TT	24793	81020	29700	51,320	7,064.01	168.19	110,080	110,080	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0900 HRS		
									Totals to Date	271,240	37,335.17	888.93		271,240	271,240							

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net Bbl's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	02.28.2023	08086-09029	SRS2722	1983	4289		TT	25100	74860	27900	46,960	6,463.87	153.90			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0920 HRS		
2	02.28.2023	08086-09030	SRS2722	1983	4290		TT	25101	67060	27900	39,160	5,390.23	128.34	86,120	86,120	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1325 HRS		
									Totals to Date		86,120	11,854.09	282.24	86,120	86,120							

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
1	03.02.2023	08086-09031	SRS2722	2286	4289		TT	25129	81480	27900	53,580	7,375.09	175.60	53,580		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1150 HRS		
2	03.03.2023	08086-09032	SRS2722	2286	4290		TT	25138	85040	29700	55,340	7,617.34	181.37	55,340	108,920	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0656 HRS		
3	03.31.2023	08086-09033		2286	4289		TT	25334	83780	27900	55,880	7,691.67	183.14			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1313 HRS		
4	03.31.2023	08086-09034	SRS2737	2286	4290		TT	25340	77060	29700	47,360	6,518.93	40,841	103,240	103,240	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1510 HRS		
									Totals to Date			212,160	29,203.03	41,381.17	212,160	212,160						

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER #	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	ional Comments
1	04.03.2023	08086-09035	SRS2741	2286	4362		TT	25346	81320	27900	53,420	7,353.06	46,067			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0800 HRS		
2	04.03.2023	08086-09036	SRS2742	2286	4289		TT	25349	74500	27900	46,600	6,414.32	40,186	100,020		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1015 HRS		
3	04.05.2023	08086-09037	SRS2746	2286	4290		TT	25360	74940	29700	45,240	6,227.12	39,013			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0955 HRS		
4	04.05.2023	08086-09038	SRS2744	1984	4362		TT	25363	71220	27340	43,880	6,039.92	37,840	89,120		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1330 HRS		
5	04.06.2023	08086-09039	SRS2744	2286	4284		TT	25371	81720	29700	52,020	7,160.36	44,860	52,020	241,160	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0930 HRS		
6	04.10.2023	08086-09040	SRS2746	2286	4289		TT	25377	80240	27900	52,340	7,204.40	45,136	52,340		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1110 HR		
7	04.12.2023	08086-09041	SRS2747	2286	4362		TT	25378	77920	27900	50,020	6,885.07	43,135			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0930 HRS		
8	04.12.2023	08086-09042	SRS2747	2286	4290		TT	25379	79720	29700	50,020	6,885.07	43,135	100,040		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1136 HRS		
9	04.14.2023	08086-09043	SRS2748	2286	4289		TT	25381	77280	27900	49,380	6,796.97	42,583			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0922 HRS		
10	04.14.2023	08086-09044	SRS2748	2286	4362		TT	25382	73660	27900	45,760	6,298.69	39,461	95,140	247,520	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1125 HRS		
11	04.18.2023	08086-09045	SRS2749	2286	4290		TT	25384	84620	29700	54,920	7,559.53	47,360			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0938 HRS		
12	04.18.2023	08086-09046	SRS2749	2286	4289		TT	25385	78120	27900	50,220	6,912.59	43,307	105,140		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1150 HRS		
13	04.20.2023	08086-09047	SRS2751	2286	4362		TT	25399	78840	27900	50,940	7,011.70	43,928			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0930 HRS		
14	04.20.2023	08086-09048	SRS2751	2286	4290		TT	25405	80240	29700	50,540	6,956.64	43,583	101,480	206,620	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	1145 HRS		
15	04.26.2023	08086-09049	SRS2750	2286	4289	SV28568L-1	TT	25412	77800	27900	49,900	6,868.55	43,031			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (SLOP OIL), 3, II	0930 HRS		
16	04.26.2023	08086-09050	SRS2765	2286	4362	SV28568L-2	TT	25413	81860	27900	53,960	7,427.39	176.84	103,860		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1140 HRS		
17	04.27.2023	08086-09051	SRS2765	2286	4290	SV28568L-3	TT	25416	75840	29700	46,140	6,351.00	151.21	46,140		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0850 HRS		
18	04.28.2023	08086-09052	SRS2764	1984	4289	SV28568L-4	TT	25423	70640	28000	42,640	5,869.24	139.74	42,640	192,640	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1245 HRS		
									Totals to Date			887,940	122,221.61	643,093.82	887,940	887,940						

LOAD #	DATE	BOL #	INVOICE #	TRUCK #	CONTAINER	FRAC TANK #	CONTAINER TYPE	TICKET #	GROSS (LBS)	TARE (LBS)	NET (LBS)	Net Gallons	Net BBI's	NET DAY TOTAL (LBS)	NET WEEKLY TOTAL (LBS)	CARRIER	LOCATION	MATERIAL	U.S. DOT Description	Time In	Time Out	Additional Comments
13	05.16.2023	08086-09064	SRS2788	2286	4362	NA	TT	25480	83360	30500	52,860	7,275.98	173.24			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1005 HRS		
14	05.16.2023	08086-09065	SRS2766	2286	4283	SV31001L-1	TT	25481	90800	29760	61,040	8,401.93	200.05	113,900		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1125 HRS		
15	05.18.2023	08086-09066	SRS2777	2286	4284	SV28568L-5	TT	29700	79100	29700	49,400	6,799.72	161.90			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0740 HRS		
16	05.18.2023	08086-09067	SRS2782	2286	4283	SV28568L-6	TT	25487	83720	29760	53,960	7,427.39	176.84			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0945 HRS		
17	05.18.2023	08086-09068	SRS2782	2286	4284	SV285687-1	TT	25490	91120	25490	65,630	9,033.72	215.09	168,990		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1050 HRS		
18	05.19.2023	08086-09069	SRS2784	2286	4290	SV26382L-1	TT	25495	90440	30400	60,040	8,264.28	196.77			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0920 HRS		
19	05.19.2023	08086-09070		2286	4283	SV26382L-2	TT	25497	87240	30400	56,840	7,823.81	186.28	116,880	399,770	DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1033 HRS		
20	05.22.2023	08086-09071	SRS2783	2286	4249	SV31001L-2	TT	25498	69500	27900	41,600	5,726.08	136.34			DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0746 HRS		
21	05.22.2023	08086-09072		2286	4284	SV31001L-3	TT	25499	85180	29700	55,480	7,636.61	181.82	97,080		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	0945 HRS		
22	05.23.2023	08086-09073		2286	4289	SV26382L-3	TT	25501	73280	27900	45,380	6,246.39	148.72	45,380		DANA TRANSPORT	TANK 273	SLOP OIL	UN1993, FLAMMABLE LIQUID, N.O.S. (F037), 3, II	1230 HRS		

Ferrous		
TOTAL 04/07/23		
LOCATION	BID GT	NET GT
TANK 270		35.00
TANK 271		215.70
TANK 272		437.30
TANK 273		8.35
TANK 281		585.10
TANK 282		331.30
TANK 284		523.00
TANK 282/284		11.90
TANK 285		340.10
TANK 285/286		11.40
TANK 286		295.70

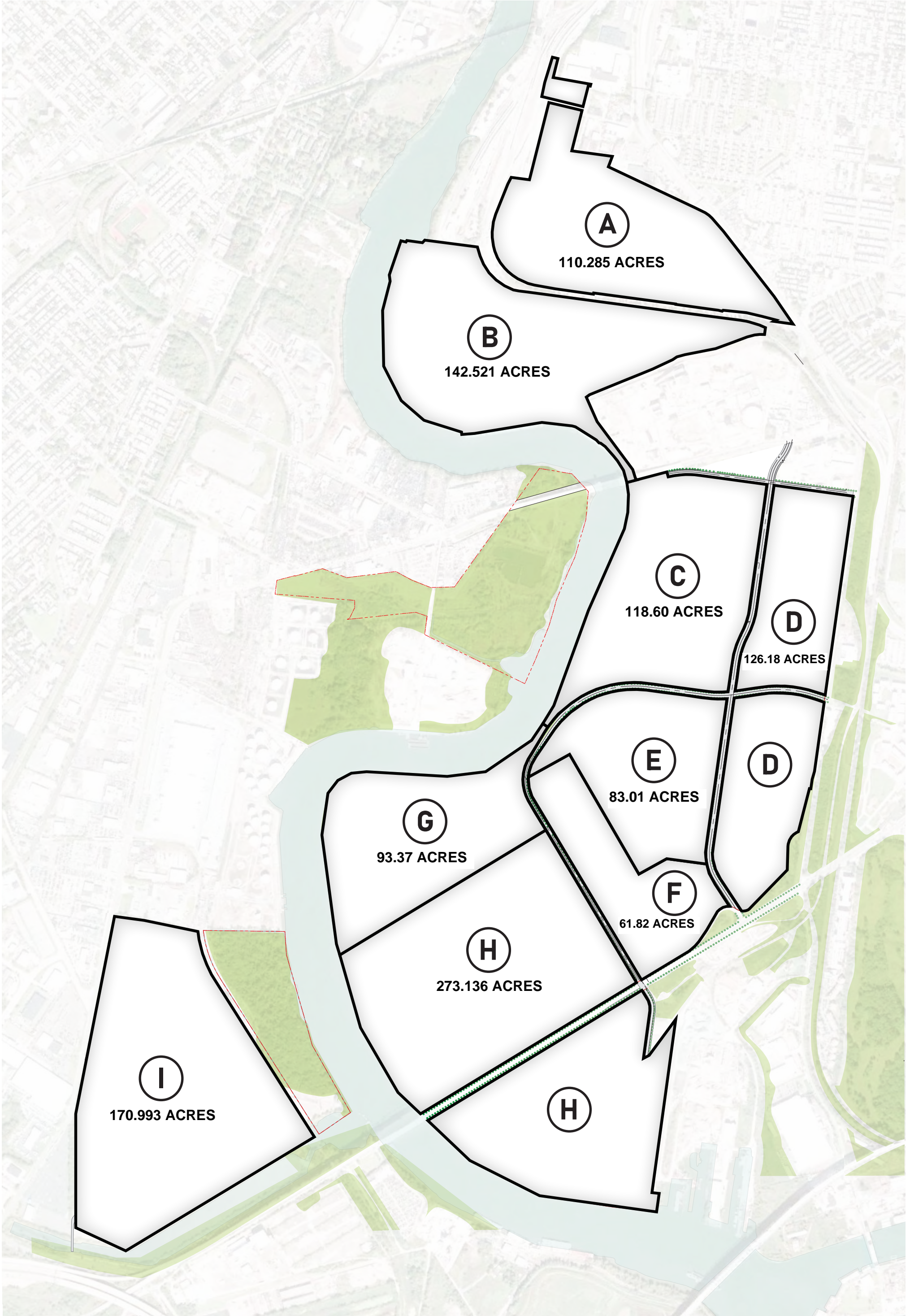
Non-Ferrous		
AS OF 05/15/23		
TANK	NET GT	Scrap Removal
TANK 270	35.00	Allegheny / All-Met / EMR
TANK 272	437.30	Allegheny / All-Met
TANK 273	173.60	Allegheny / All-Met
TANK 276	38.20	Allegheny / All-Met
TANK 281	662.80	Allegheny / All-Met / EMR / SIMS
TANK 282	331.30	Allegheny / All-Met
TANK 284	523.00	Allegheny / All-Met
TANK 282/284	11.90	Allegheny / All-Met
TANK 285	340.10	Allegheny / All-Met
TANK 285/286	11.40	Allegheny / All-Met
TANK 286	295.70	Allegheny / All-Met

Appendix D

Parcel Map



INDIVIDUAL PARCEL MAP



Appendix E

PNDI



Project Description – PNDI-789750

Terraphase Engineering Inc. (Terraphase) is supporting Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), with the closure of several Aboveground Storage Tanks (ASTs) in accordance with the Storage Tank and Spill Prevention Act (Act 32) and 25 Pa. Code 245, that will be emptied, cleaned, dismantled, and removed during the demolition and redevelopment of the Point Breeze Terminal (Facility ID 51-33620) and Girard Point (Facility ID 51-33624) at the former Philadelphia Energy Solutions (PES) Refinery located at 3144 West Passyunk Avenue, Philadelphia, PA (Site) (Figure 1.1).

The Site is a 1,300-acre former refinery that is being repurposed and redeveloped into a state of the art, multimodal industrial park with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. To facilitate redevelopment, existing infrastructure at the Site, including the ASTs, will be demolished. Demolition is anticipated to progress generally from north to south with AST removal to be completed for Point Breeze and Girard Point between 2020 and 2024. Terraphase will prepare reports for submission to the Pennsylvania Department of Environmental Protection (PADEP) as the work progresses by Tank Group (Figure 1.2).

This PNDI review request (789750) is associated with Tank Group 06. Tank Group 06 is located immediately adjacent to the Schuylkill River. No other wetlands or other potential sensitive receptors are in or adjacent to the Site. The Tank Group consists of approximately 57-acre area within the former PES refinery.

1. PROJECT INFORMATION

Project Name: **Former Philadelphia Refinery - Tank Group 06**

Date of Review: **6/15/2023 04:09:52 PM**

Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**

Project Area: **127.76 acres**

County(s): **Philadelphia**

Township/Municipality(s): **PHILADELPHIA**

ZIP Code:

Quadrangle Name(s): **PHILADELPHIA**

Watersheds HUC 8: **Schuylkill**

Watersheds HUC 12: **City of Philadelphia-Schuylkill River**

Decimal Degrees: **39.906933, -75.208919**

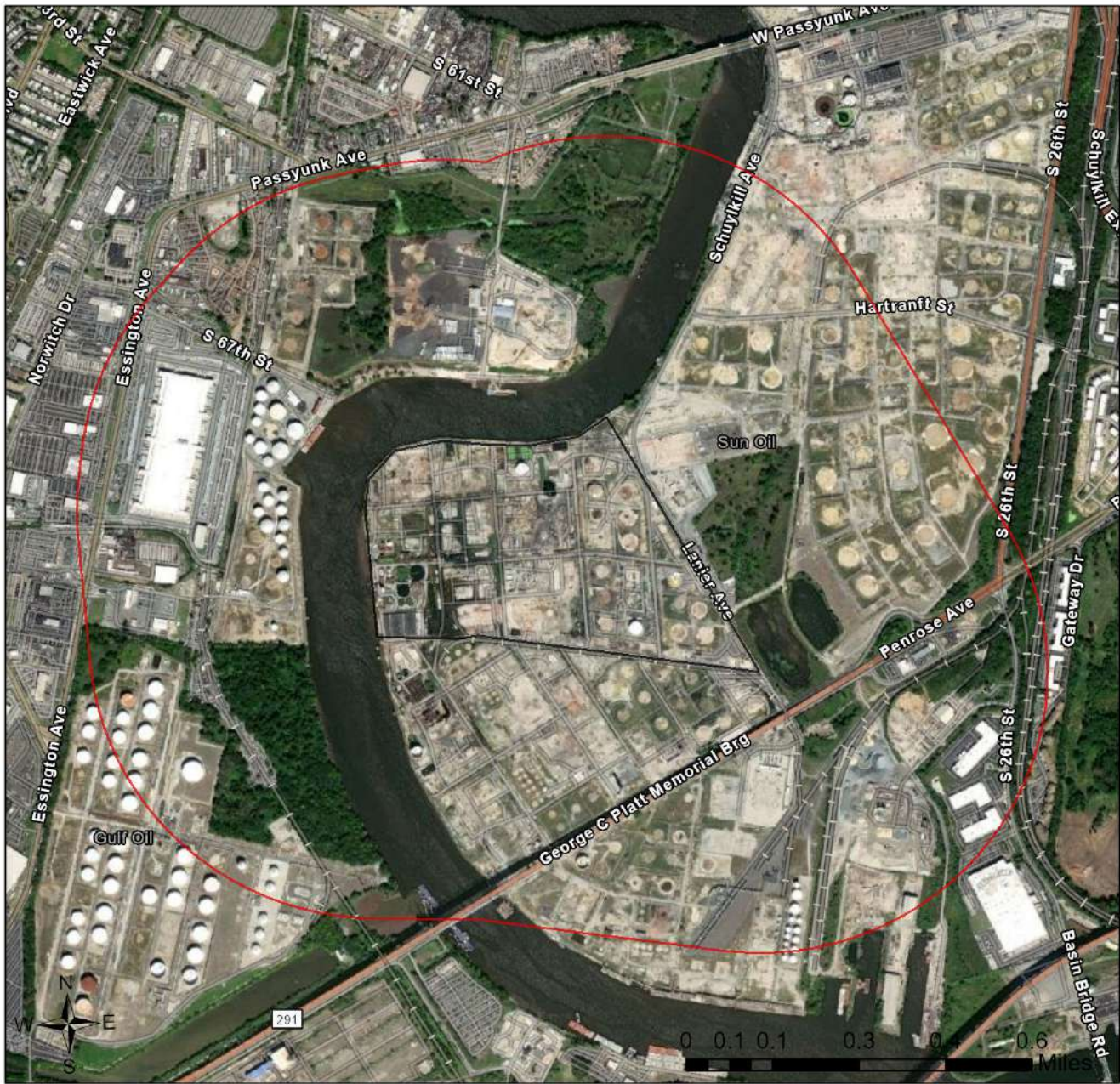
Degrees Minutes Seconds: **39° 54' 24.9601" N, 75° 12' 32.1100" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Former Philadelphia Refinery - Tank Group 06

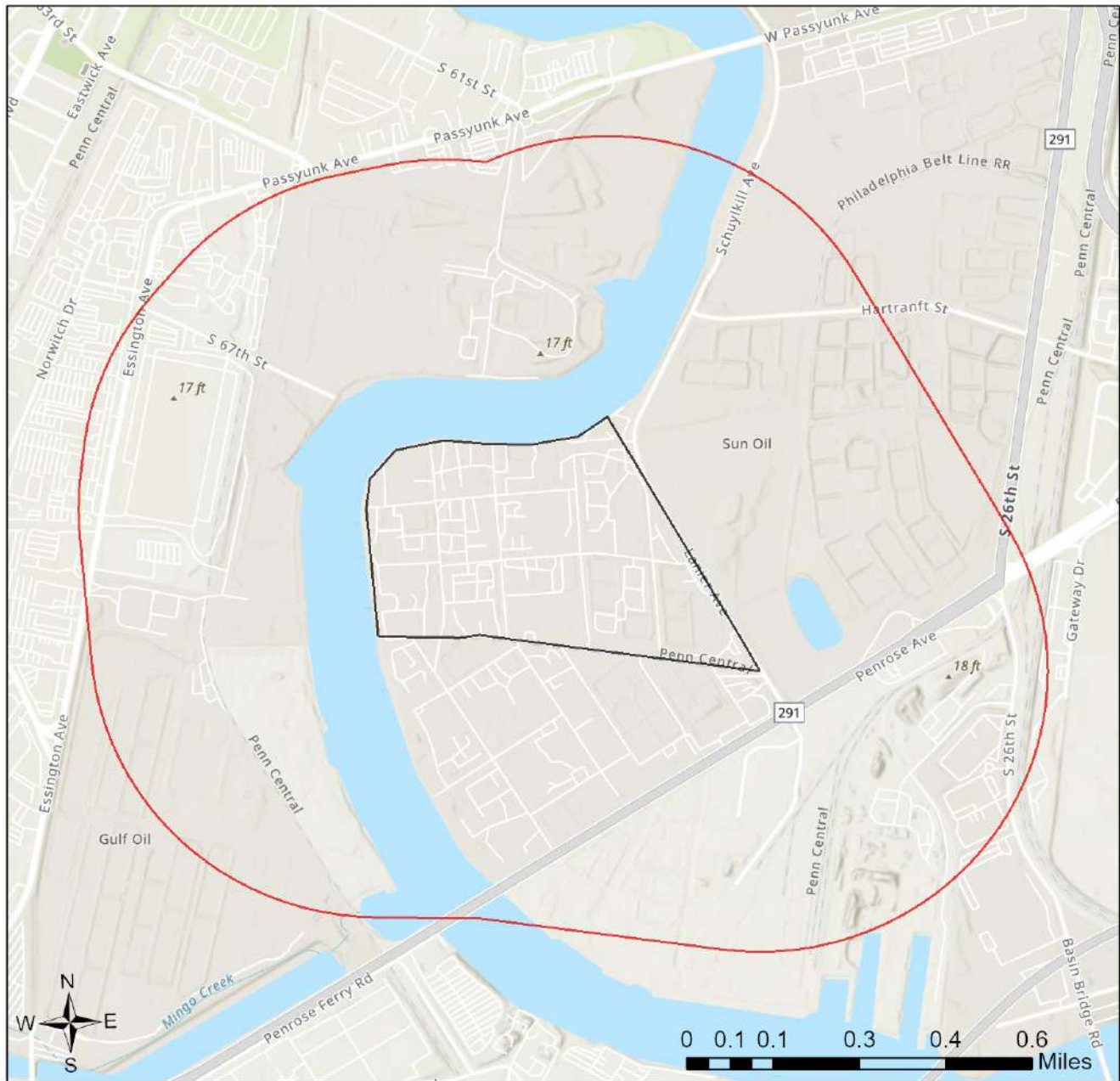




-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Former Philadelphia Refinery - Tank Group 06



-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur.

Your answer is: The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands (holding a natural resource degree or equivalent work experience), or it is currently unknown if the project or project activities will affect wetlands.

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?

Your answer is: Yes

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here:

<https://conservationexplorer.dcnr.pa.gov/content/survey-protocols>)

Scientific Name	Common Name	Current Status	Proposed Status	Survey Window
Amaranthus cannabinus	Waterhemp Ragweed	Special Concern Species*	Special Concern Species*	Flowers July - September

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Threatened

U.S. Fish and Wildlife Service RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).

*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Game Commission

Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date



June 21, 2023

IN REPLY REFER TO

SIR# 58226

Terraphase Engineering
Alexander Strohl
1100 E. Hector Street
Conshohocken, Pennsylvania 19428

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 789750_1
Former Philadelphia Refinery - Tank Group 06
Philadelphia City: PHILADELPHIA County**

Dear Alexander Strohl:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish and Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish and Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 or kgipe@pa.gov and refer to the SIR # 58226. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Christopher A. Urban". The signature is written in a cursive style with a large, prominent "C" at the beginning.

Christopher A. Urban, Chief
Natural Diversity Section

CAU//KDG/dn

June 21, 2023

PNDI Number: 789750
Version: Final_1; 6/15/23

Alexander Strohl
Terraphase Engineering
1100 E. Hector Street, Suite 400
Conshohocken, PA 19428
Email: alexander.strohl@terrphase.com (hard copy will not follow)

Re: Former Philadelphia Refinery - Tank Group 06
Philadelphia Township, Philadelphia County, PA

Dear Alexander Strohl,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **789750 (Final_1)** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

Recommended Best Management Practices:

- Use a conservative approach to project design that minimizes permanent and temporary disturbances to soil and native vegetation. This will conserve habitat and limit opportunities for invasive plants.
- Clean boot treads, tools, construction equipment, and vehicles thoroughly (especially the undercarriage and wheels) before they are brought on site. This will remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other worksites.
- Use clean project materials (e.g., weed-free straw) or materials native to the worksite to avoid introducing invasive species from contaminated sources.
- Revegetate or cover disturbed soil and stockpiles quickly to discourage the germination of invasive plants. Implement proper erosion control practices to stabilize soil and reduce runoff.
- Do not use seed mixes that include invasive species. More information about invasive plants in Pennsylvania can be found at the following link: <http://www.dcnr.pa.gov/Conservation/WildPlants/InvasivePlants/Pages/default.aspx>
- Use habitat appropriate seed mixes. For example, use a riparian seed mix when reseeding along a waterway. The Bureau of Forestry Planting & Seeding Guidelines can be found at the following link for recommendations: http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20031083.pdf

- Use native plants for landscaping, revegetation, and stormwater management. Do not use nonnative invasive species. Reduce the area of lawn and impermeable surfaces to the fullest extent practicable in favor of native gardens or habitat restoration (e.g., forest, meadow, wetland, etc.). More information about lawn conversion can be found at the following link: <https://www.dcnr.pa.gov/Conservation/Water/LawnConversion/Pages/default.aspx>
- Plant forest buffers where trees were historically present along streams, wetlands, and bodies of water. Buffers should be a minimum of 35 feet in width (ideally at least 100 feet in width). Where trees are not appropriate (e.g., powerline rights-of-way), buffer with native shrubs and herbaceous plants. More information about riparian buffers can be found at the following link: <https://www.dcnr.pa.gov/Conservation/Water/RiparianBuffers/Pages/default.aspx>
- Manage rights-of-way for diverse native plant communities and wildlife (e.g., monarch butterfly). In seed mixes, include wildflowers that have overlapping bloom periods and provide forage for pollinators throughout the growing season. Avoid blanket herbicide applications; instead, spot-treat undesirable tall woody vegetation and invasive weeds. Where mowing is necessary, reduce frequency to once every few years during the dormant season (i.e., after first frost in late fall and before bird nesting in early spring), leaving some refugia for overwintering wildlife.
- Monitor for invasive plants before, during, and after project activities and promptly control any identified infestations. Frequent monitoring allows for early detection and rapid response.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR’s jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth’s other resource agencies for environmental review.

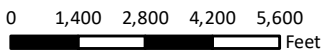
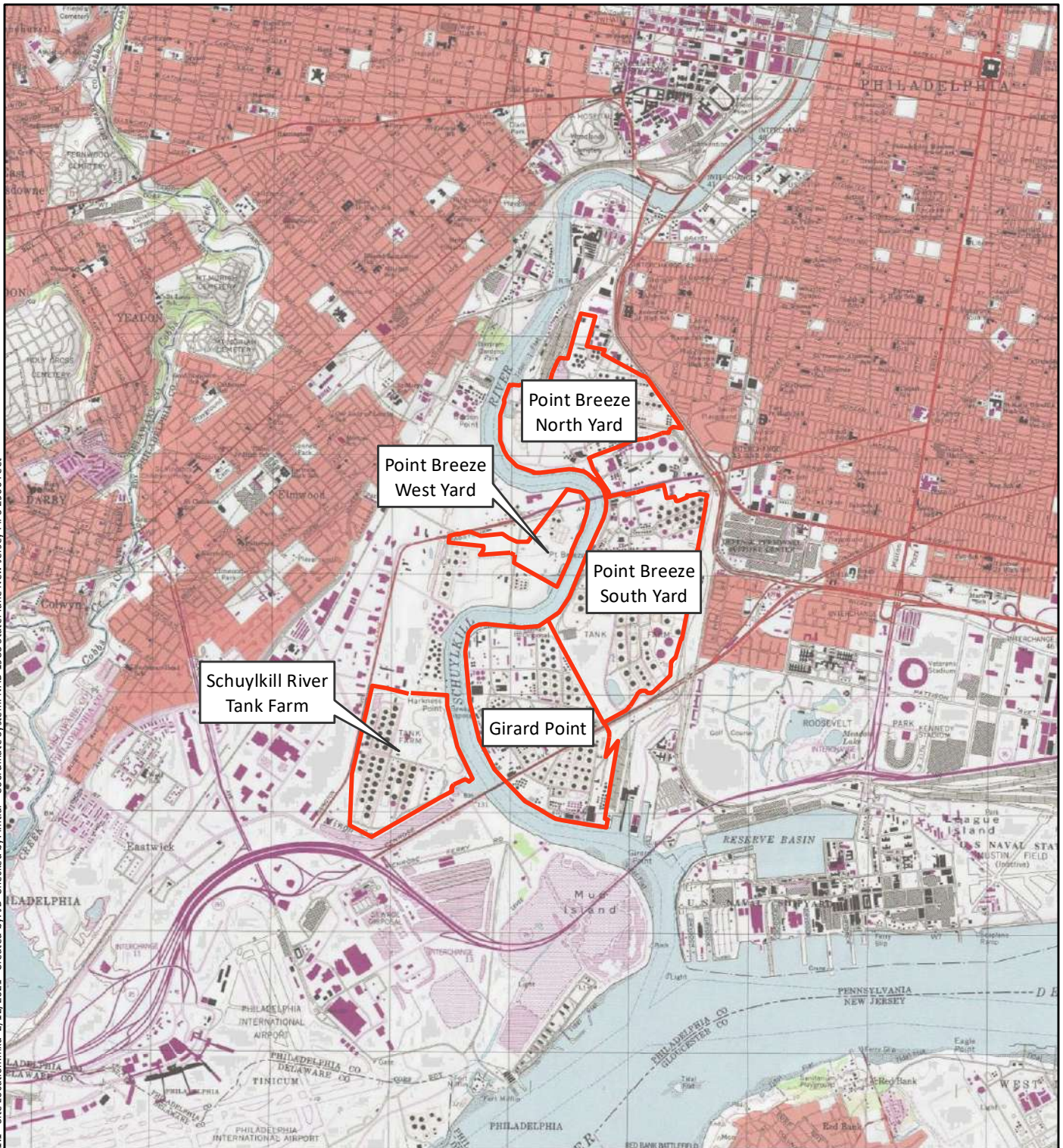
Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely,



Greg Podnieszinski, Section Chief
Natural Heritage Section

File: N:\GIS\Proj\044.001_PESRM-PE5\MXDS\AST\Work\Figure 1.1 - Site Location.mxd 2/17/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



1 inch = 4,000 feet



Legend

Property Boundary

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

SAFETY FIRST



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location

FIGURE 1.1

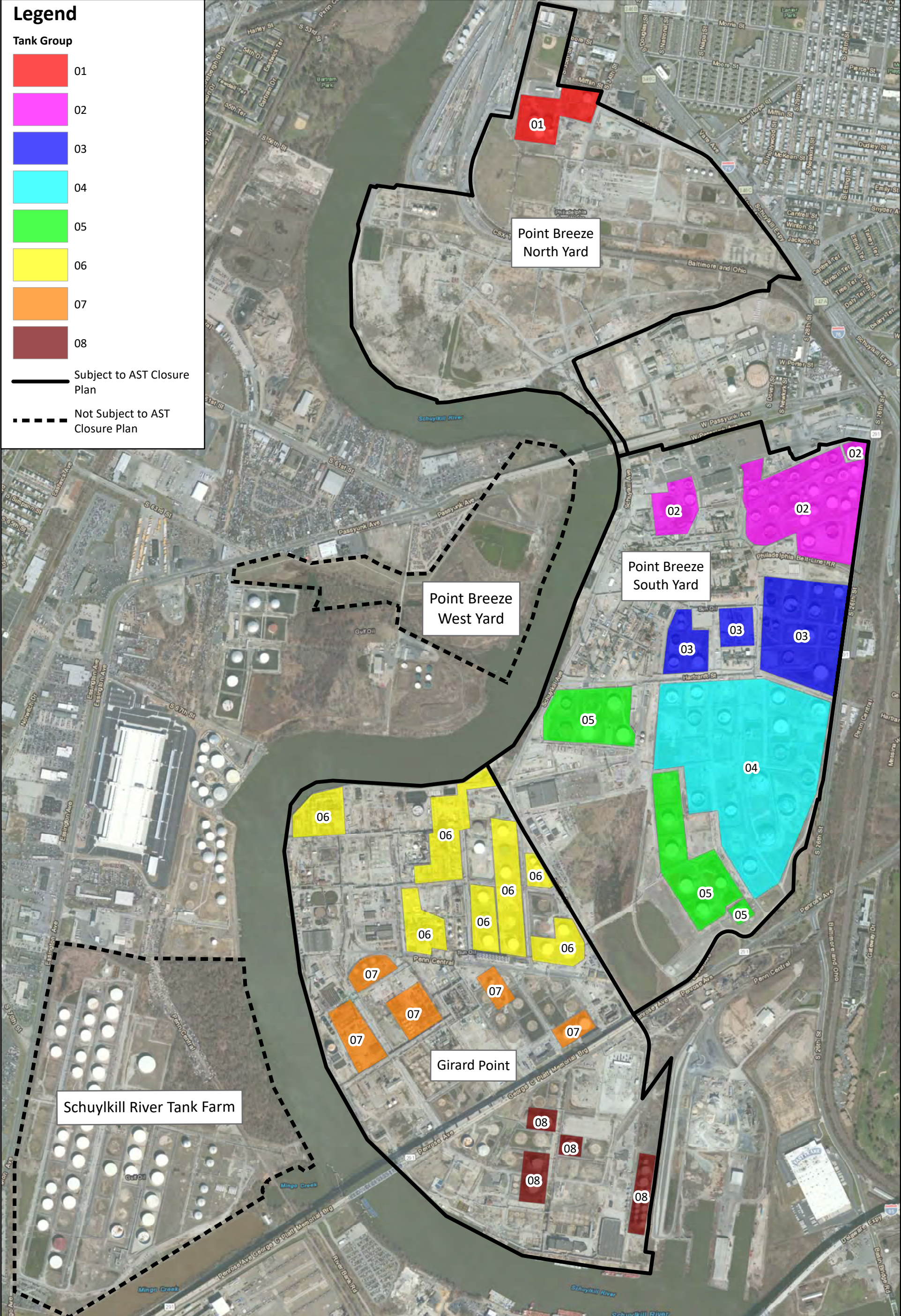
Legend

Tank Group

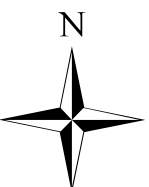
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08

Subject to AST Closure Plan

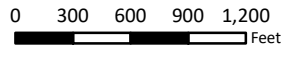
Not Subject to AST Closure Plan



File: N:\GIS\Prj\0404_001_PESRM-PES\WXDS\AST Work\Figure 1.2 - Site Layout.mxd 2/26/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Notes: Aerial imagery source Maxar 10/19/2019



1 inch = 1,000 feet

DRAFT

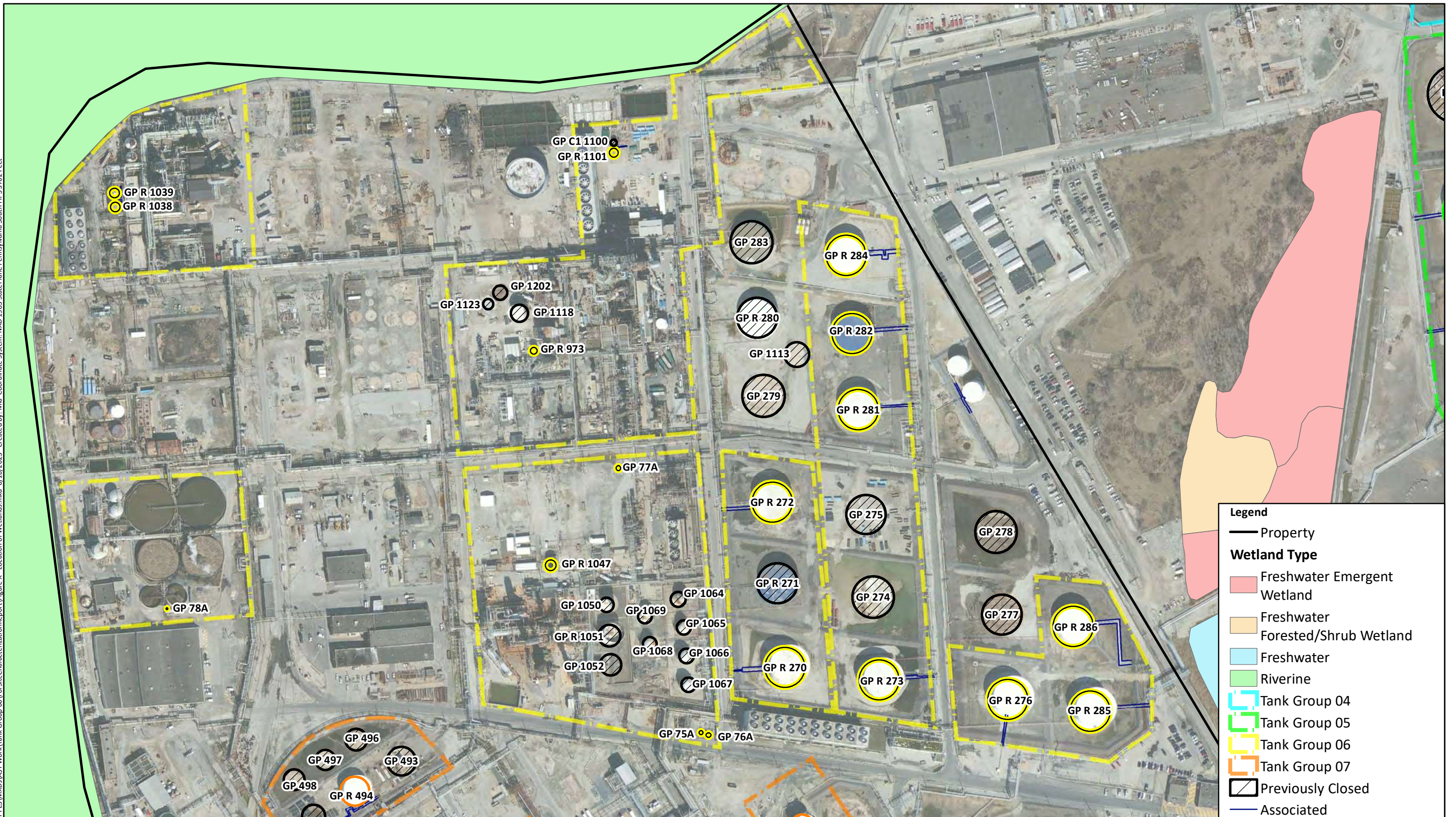
SAFETY FIRST

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

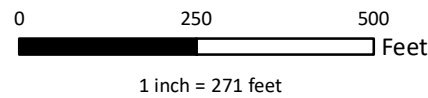
Site Layout and AST Closure Phase

FIGURE 1.2

File: N:\GIS\Prj\044_001_PESRM-PES\WADS\AST\Work\Tank_Group_06\ForsiteCharacterizationReport\Figure X - Location of Wetlands.mxd 6/16/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Note: Aerial imagery source Maxar 10/19/2019



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Location of Wetlands Tank Group 06 Figure 1.3
	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	

Appendix F

Soil Boring Logs



Ransom Consulting, LLC

Soil Boring Log

Boring No.: GPR281-01

Page 1 of 1

Client: PESRM

Date Start: 12/06/2022

Project Name: PES Refinery

Date Finish: 12/06/2022

Project No.: 200.00135

Location: Philadelphia, PA

Permit No.:

Drilling Contractor: TPI

Ground Elevation: N/A

Driller:

Drilling Method: Geoprobe

Datum: N/A

Hole Diameter: 2"

Sampling Method: Acetate Liner

Total Depth: 5.0'

Logged By: Tyler Short

Sample Interval: 4.5'-5.0'

Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-01		123.8	0.0-5.0' Black and gray sandy FILL, with some silt	
			115.5		
2			184.3		
			475.9		
3			1032.3		
			249.8		
4			110.7		
			109.3		
5			1787		
			1969		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC

Soil Boring Log

Boring No.: GPR281-07

Page 1 of 1

Client: PESRM

Date Start: 12/06/2022

Project Name: PES Refinery

Date Finish: 12/06/2022

Project No.: 200.00135

Location: Philadelphia, PA

Permit No.:

Drilling Contractor: TPI

Ground Elevation: N/A

Driller:

Drilling Method: Geoprobe

Datum: N/A

Hole Diameter: 2"

Sampling Method: Acetate Liner

Total Depth: 5.0'

Logged By: Tyler Short

Sample Interval: 4.5'-5.0'

Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-07		12.2	0.0-5.0' Black and gray sandy FILL, with some silt	
			17.3		
2			19.4		
			455.9		
3			1004		
			965.3		
4			969.3		
			333.2		
5			1521		
			1635.2		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR281-08
Client: PESRM				Page 1 of 1
Project Name: PES Refinery				Date Start: 12/06/2022
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 12/06/2022
Drilling Contractor: TPI				Permit No.:
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-08		12.4	0.0-3.0' Black and gray sandy FILL	
			9.3		
			7.2		
2			140.3	3.0'-5.0' Gray SILT with some coarse sand	
			122.9		
3			156.1		
			522.6		
4			1662		
			1713		
5			1927		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR281-10
Client: PESRM				Page 1 of 1
Project Name: PES Refinery				Date Start: 12/06/2022
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 12/06/2022
Drilling Contractor: TPI				Permit No.:
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short		Sample Interval: 3.5'-4.0'		Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-10		17.9	0.0-5.0' Light brown sandy FILL	
			43.9		
2			168.7		
			203.6		
3			204.2		
			450.6		
4			1203		
			1387		
5			802.4		
			739.2		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR281-11
Client: PESRM				Page 1 of 1
Project Name: PES Refinery				Date Start: 12/06/2022
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 12/06/2022
Drilling Contractor: TPI				Permit No.:
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-11		4.3	0.0-5.0' Brown coarse SAND with some light gray silt	
			30.8		
2			36.3		
			489.9		
3			222.7		
			195.9		
4			123.9		
			802.4		
5			1608		
			1695		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR281-12
Client: PESRM				Page 1 of 1
Project Name: PES Refinery				Date Start: 12/06/2022
Project No.: 200.00135		Location: Philadelphia, PA		Date Finish: 12/06/2022
Drilling Contractor: TPI				Permit No.:
Driller:		Drilling Method: Geoprobe		Ground Elevation: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Datum: N/A
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Total Depth: 5.0'
				Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR281-12		11	0.0-5.0' Brown coarse SAND with some light gray silt	
			10.5		
2			12.2		
			43		
3			103.8		
			48.5		
4			514.4		
			674.5		
5			573.1		
			737.1		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-01	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-01		25.1	0.0-5.0' Brown and black coarse sandy FILL with brick, concrete, ash	
			15.9		
2			13.2		
			32.3		
3			21.2		
			49.4		
4			56.9		
			720.4		
5			861.5		
			925.8		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-03	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-03		1.6	0.0-5.0' Brown and black coarse sandy FILL with brick, concrete, ash	
			8.2		
2			8.4		
			9.7		
3			23.2		
			59.9		
4			24.3		
			140.9		
5			129.8		
			202.7		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-05	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0'-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-05		10.7	0.0-5.0' Brown and black coarse sandy FILL with brick, concrete, ash	
			23.2		
2			27.3		
			50.1		
3			55.7		
			60.9		
4			103.8		
			105.7		
5			492.1		
			387.1		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-07	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.0'-4.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-07		1.7	0.0-5.0' Brown and black coarse sandy FILL with some silt	
			2.7		
2			52.9		
			44.7		
3			103.1		
			55.1		
4			62.8		
			42.3		
5			291.7		
			140.8		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-08	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-08		15.9	0.0-5.0' Black and gray coarse sandy FILL with some silt	
			12.8		
2			14.9		
			42.7		
3			43.8		
			44.1		
4			32		
			20.7		
5			34.8		
			108.3		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-10	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0'-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-10		0.0	0.0-5.0' Black and gray coarse sandy FILL with some silt	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR282-12	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 3.0'-3.5'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR282-12		0.0	0.0-5.0' Black and gray coarse sandy FILL with some silt	
2			0.0		
3			0.0		
4			0.0		
5			0.0		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-01	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 2.5'-3.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR284-01		1.9	0.0-5.0' Brown fine-to-coarse SAND with some gravel	
			3.3		
2			2.3		
			2.1		
3			9.9		
			15.8		
4			11.2		
			3.7		
5			1.9		
			1.8		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-03	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR284-03		11.7	0.0-5.0' Brown fine-to-coarse SAND with some gravel	
			12.5		
2			12.3		
			12.2		
3			17.0		
			23.9		
4			24.3		
			25.8		
5			30.1		
			39.1		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-05	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR284-05		0.0	0.0-5.0' Brown fine-to-coarse SAND with some silt	
			1.3		
2			32.9		
			23.9		
3			12.5		
			39.1		
4			47.8		
			45.3		
5			102.7		
			292.1		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-07	
Client: PESRM		Project Name: PES Refinery		Page 1 of 1	
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022	
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022	
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:	
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A	
		Sample Interval: 4.5'-5.0'		Datum: N/A	
				Total Depth: 5.0'	
				Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	GPR284-07		6.7	0.0-5.0' Brown fine-to-coarse SAND with some silt	
			2.1		
2			3.9		
			4.3		
3			34.9		
			35.8		
4			27.2		
			67.8		
5			281.1		
			353.3		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-08
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-08		0.0	0.0-5.0' Brown fine-to-coarse SAND with some silt
2			0.0	
3			0.0	
4			4.5	
5			4.9	
			5.3	
			19.5	
			25.9	
			25.1	
			33.8	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-09
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-09		0.0	0.0-5.0' Brown fine-to-coarse SAND with some silt
2			0.0	
3			0.0	
4			3.5	
5			5.1	
			7.4	
			16.7	
			24.8	
			26.9	
			29.4	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-10
Client: PESRM		Date Start: 12/06/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/06/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0'-4.5', Dup-52		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-10, Dup-52		1.3	0.0-5.0' Brown fine-to-coarse sandy FILL with gravel
			1.9	
2			1.1	
			5.9	
3			6.5	
			4.0	
4			2.7	
			3.2	
5			9.8	
			1.2	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-11
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.0'-4.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-11		0.7	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			1.5	
2			3.8	
			5.5	
3			1.0	
			2.3	
4			4.3	
			9.9	
5			16.1	
			10.3	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-13
Client: PESRM		Date Start: 12/06/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/06/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-13		0.2	0.0-5.0' Brown and black coarse sandy FILL
			0.6	
2			5.9	
			5.2	
3			6.0	
			9.0	
4			9.6	
			10.3	
5			10.2	
			14.2	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-14
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-14		0.4	0.0-5.0' Brown and black coarse SAND with little gray SILT
			12.2	
2			3.3	
			35.4	
3			29.4	
			45.5	
4			80.1	
			77.3	
5			101.2	
			199.2	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR284-15
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/06/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/06/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR284-15		15.7	0.0-5.0' Brown coarse SAND with some gray silt
			13.3	
2			16.9	
			30.1	
3			30.9	
			30.7	
4			43.8	
			92.7	
5			93.4	
			95.5	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-01
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-01		11.2	0.0-3.0' Brown sandy FILL with some brick, ash and concrete gravel
2			39.4	
3			55.3	
4			34.8	3.0'-5.0' Dark brown and gray SILT
5			434.1	
			446.8	
			801.3	
			1092.0	
			1508.0	
			1800.0	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-03
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-03		5.3	0.0-3.0' Brown sandy FILL with some brick, ash and concrete gravel
2			15.9	
3			398.8	
4			716.3	3.0'-5.0' Dark brown and gray SILT
5			768.8	
			1015.0	
			1432.0	
			1863.0	
			2559.0	
			2837.0	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-05
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-05		18.2	0.0-3.5' Brown sandy FILL with some brick, ash and concrete gravel
2			123.9	
3			17.9	
4			170.3	3.5'-5.0' Dark brown and gray SILT
5			125.9	
			307.6	
			619.2	
			434.1	
			1270.0	
			1402.0	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-06
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-06		5.3	0.0-3.0' Brown sandy FILL with some brick, ash and concrete gravel
2			56.6	
3			155.4	
4			747.7	3.0'-5.0' Dark brown and gray SILT
5			984.4	
			1109.0	
			1245.0	
			1001.0	
			932.9	
			1615.0	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-07
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-07		27.3	0.0-3.0' Brown sandy FILL with some brick, ash and concrete gravel
			88.4	
2			219.3	3.0'-5.0' Dark brown and gray SILT
			237.3	
3			360.1	
			421.8	
4			477.3	
			622.7	
5			729.5	
			801.9	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-11
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-11		3.6	0.0-4.0' Brown sandy FILL with some brick, ash and concrete gravel
2			5.1	
3			14.1	
4			71.9	
5			57.8	
			99.5	4.0'-5.0' Dark brown and gray SILT
			137.8	
			141.9	
			178.8	
			184.0	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-12
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-12		7.9	0.0-4.0' Brown sandy FILL with some brick, ash and concrete gravel
2			8.5	
3			28.3	
4			17.6	
5			44.2	
6			55.7	4.0'-5.0' Dark brown and gray SILT
7			116.9	
8			117.1	
9			121.3	
10			185.8	
11			END OF BORING (5 ft.)	
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-13
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-13		11.1	0.0-4.0' Brown sandy FILL with some brick, ash and concrete gravel
			19.5	
2			55.5	
			80.4	
			82.3	
3			85.0	
			131.4	
4			133.5	
			136.7	4.0'-5.0' Dark brown and gray SILT
5			161.4	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-15
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-15		1.6	0.0-4.0' Brown sandy FILL with some brick, ash and concrete gravel
			4.6	
2			11.0	
			11.5	
3			11.2	
			16.3	
4			16.3	
			22.0	
5			24.6	4.0'-5.0' Dark brown and gray SILT
			27.1	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-16
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-16		2.3	0.0-3.0' Brown sandy FILL with some brick, ash and concrete
2			2.1	
3			2.5	
4			8.6	3.0'-5.0' Dark brown and gray SILT
5			12.2	
			16.3	
			39.0	
			39.3	
			46.0	
			49.1	
6			END OF BORING (5 ft.)	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR276-17
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/07/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/07/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR276-17		0.5	0.0-3.0' Brown sandy FILL with some brick, ash and concrete
2			1.3	
3			2.9	
4			2.4	3.0'-5.0' Dark brown and gray SILT
5			7.3	
			21.1	
			24.3	
			25.4	
			44.0	
			44.8	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-01
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR285-01		1.7	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2			7.3	
3			8.1	
4			8.1	
5			11.8	
			12.2	
			14.7	
			14.1	
			20.6	
			40.1	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-02
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR285-02		2.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2			9.2	
			11.7	
			14.9	
3			14.4	
			15.9	
			19.4	
4			35.3	
			47.0	4.0'-5.0' Dark brown and gray SILT
5			52.9	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-03	
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1	
Project Name: PES Refinery		Date Finish: 12/07/2022			
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:		
Drilling Contractor: TPI		Ground Elevation: N/A			
Driller:		Drilling Method: Geoprobe		Datum: N/A	
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'	
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	
1	GPR285-03		2.5	0.0-4.0' Brown sandy FILL with some brick, ash and concrete	
			4.5		
2			5.9		
			20.6		
3			16.0		
			12.1		
4			28.4		
			38.6		
5			36.9		4.0'-5.0' Dark brown and gray SILT
			50.0		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-07	
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1	
Project Name: PES Refinery		Date Finish: 12/07/2022			
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:		
Drilling Contractor: TPI		Ground Elevation: N/A			
Driller:		Drilling Method: Geoprobe		Datum: N/A	
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'	
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	
1	GPR285-07		1.8	0.0-4.0' Brown sandy FILL with some brick, ash and concrete	
			4.9		
2			4.9		
			8.1		
3			12.0		
			38.7		
4			34.9		
			33.2		
5			44.8		4.0'-5.0' Dark brown and gray SILT
			49.4		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-08
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/07/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR285-08, Dup-53		1.2	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2			1.7	
			1.3	
			9.3	
3			11.1	
			15.7	
			14.4	
4			19.4	
			24.3	4.0'-5.0' Dark brown and gray SILT
5			32.9	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-11	
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1	
Project Name: PES Refinery		Date Finish: 12/07/2022			
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:		
Drilling Contractor: TPI		Ground Elevation: N/A			
Driller:		Drilling Method: Geoprobe		Datum: N/A	
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'	
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	
1	GPR285-11		5.9	0.0-4.0' Brown sandy FILL with some brick, ash and concrete	
2			3.2		
3			7.9		
4			23.9		
			22.7		
			19.4		
			12.2		
			8.4		
5			19.2		4.0'-5.0' Dark brown and gray SILT
			52.7		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR285-13		
Client: PESRM		Date Start: 12/07/2022		Page 1 of 1		
Project Name: PES Refinery		Date Finish: 12/07/2022				
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:			
Drilling Contractor: TPI		Ground Elevation: N/A				
Driller:		Drilling Method: Geoprobe		Datum: N/A		
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'		
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description		
1	GPR285-13		1.7	0.0-4.0' Brown sandy FILL with some brick, ash and concrete		
					1.3	
					2.5	
2					3.0	
					1.9	
3					32.3	
					40.7	
4					49.0	
					44.7	
5					70.1	4.0'-5.0' Dark brown and gray SILT
6				END OF BORING (5 ft.)		
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-01
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-01		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
2			0.0	
3			0.0	
4			0.0	
5			0.0	
			2.5	
			3.6	
			4.1	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-02
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-02		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			0.0	
2			1.6	
			2.4	
3			1.8	
			3.6	
4			3.2	
			4.1	
5			4.7	
			5.1	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-03
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0'-4.5'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-03, Dup-54		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
2			0.0	
3			0.0	
4			0.0	
5			0.0	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-04
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-04		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			0.0	
2			0.0	
			0.0	
3			4.5	
			5.2	
4			3.6	
			8.9	
5			7.2	
			12.4	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-06
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.0'-4.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-06		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			0.0	
2			0.3	
			1.2	
3			1.6	
			4.2	
4			1.8	
			11.9	
5			13.7	
			12.6	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1047-07
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1047-07		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			0.0	
2			0.0	
			0.0	
3			1.5	
			4.2	
4			3.7	
			7.2	
5			8.0	
			8.6	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1101-01
Client: PESRM		Date Start: 12/09/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/09/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1101-01		0.0	0.0-5.0' Brown and black coarse SAND with little gray SILT
2			1.7	
3			2.4	
4			12.9	
5			24.8	
			36.7	
			35.9	
			75.8	
			50.6	
			102.0	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1101-02
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/09/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/09/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.0'-3.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1101-02		0.0	0.0-5.0' Brown and black coarse SAND with little gray SILT
2			0.0	
3			0.0	
4			2.6	
5			3.9	
			15.7	
			12.9	
			13.0	
			15.2	
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1101-03
Client: PESRM		Date Start: 12/09/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/09/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0'-4.5'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1101-03		0.0	0.0-5.0' Brown and black coarse SAND with little gray SILT
			0.0	
2			2.3	
			1.9	
3			18.3	
			15.9	
4			21.8	
			24.7	
5			16.4	
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1101-04
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/09/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/09/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1101-04		1.2	0.0-5.0' Brown and black coarse SAND with little gray SILT
			10.4	
2			58.9	
			105	
3			136	
			179	
4			185	
			225	
5			204	
			268	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR1101-05
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/09/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/09/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.0'-4.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR1101-05		0.0	0.0-5.0' Brown and black coarse SAND with little gray SILT
2			0.0	
3			0.0	
4			0.0	
5			4.8	
			8.9	
			14.6	
			22.6	
			21.8	
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-01
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-01		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2			2.1	
3			10.4	
4			42.7	
5			110	
6			106	4.0'-5.0' Dark brown and gray SILT
7			159	
8			289	
9			315	
10			325	
11			END OF BORING (5 ft.)	
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-03	
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1	
Project Name: PES Refinery		Date Finish: 12/08/2022			
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:		
Drilling Contractor: TPI		Ground Elevation: N/A			
Driller:		Drilling Method: Geoprobe		Datum: N/A	
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'	
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A	
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	
1	GPR286-03		1.2	0.0-4.0' Brown sandy FILL with some brick, ash and concrete	
2			1.7		
3			1.3		
4			9.3		
			11.1		
			15.7		
			14.4		
			19.4		
5			24.3		4.0'-5.0' Dark brown and gray SILT
			32.9		
6			END OF BORING (5 ft.)		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-05
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0'-4.5'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-05		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2				
3				
4				
5				
6				
7				
8				
9				
10				
5			19.4	4.0'-5.0' Dark brown and gray SILT
			15.0	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-07
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-07		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2				
3				
4				
5				
6				
7				
8				
9				
10				
5			17.8	4.0'-5.0' Dark brown and gray SILT
			18.9	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-08
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-08		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2				
3				
4				
5				
6				
7				
8				
9				
10				
5			20.2	4.0'-5.0' Dark brown and gray SILT
			22.9	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-11
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-11		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2			0.0	
3			0.0	
4			0.0	
5			0.0	
6			0.0	
7			0.0	
8			3.7	
9			4.2	
10			2.1	
11			21.9	4.0'-5.0' Dark brown and gray SILT
12				END OF BORING (5 ft.)
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-13
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.5'-5.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-13		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2				
3				
4				
5				
6				
7				
8				
9				
10				
5			25.8	4.0'-5.0' Dark brown and gray SILT
			27.3	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR286-16
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135		Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0'-4.5'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR286-16		0.0	0.0-4.0' Brown sandy FILL with some brick, ash and concrete
2				
3				
4				
5				
6				
7				
8				
9				
10				
5			39.7	4.0'-5.0' Dark brown and gray SILT
			32.6	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-01
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR270-01		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
2			0.7	
3			2.5	
4			2.7	
5			13.1	
			12.7	
			7.9	
			16.9	
			21.7	
			25.8	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-03
Client: PESRM		Date Start: 12/08/2022		Page 1 of 1
Project Name: PES Refinery		Date Finish: 12/08/2022		
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:	
Drilling Contractor: TPI		Ground Elevation: N/A		
Driller:		Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 3.5'-4.0'		Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR270-03		0.4	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			2.7	
2			11.7	
			9.7	
3			26.3	
			18.4	
4			26.9	
			47.9	
5			36.2	
			40.4	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-07
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.0'-4.5'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR270-07		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			1.7	
2			3.9	
			15.9	
3			12.9	
			18.3	
4			32.9	
			27.8	
5			42.6	
			36.9	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC

Soil Boring Log

Client: PESRM

Project Name: PES Refinery

Project No.: 200.00135

Location: Philadelphia, PA

Drilling Contractor: TPI

Driller:

Drilling Method: Geoprobe

Hole Diameter: 2"

Sampling Method: Acetate Liner

Logged By: Tyler Short

Sample Interval: 3.0'-3.5'

Depth (ft)	Blow Counts	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1		GPR270-08		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
			0.0		
2			0.0		
			1.2		
3			1.4		
			0.8		
4			1.8		
			1.4		
5			1.2		
			1.4		
6				END OF BORING (5 ft.)	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

17			
18			
19			
20			
21			
22			
23			
24			
25			

Boring No.: GPR270-08

Page 1 of 1

Date Start:12/08/2022

Date Finish: 12/08/2022

Permit No.:

Ground Elevation: N/A

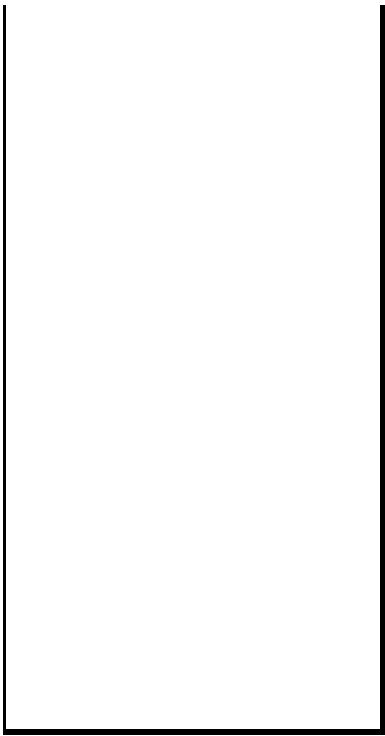
Datum: N/A

Total Depth: 5.0'

Hammer wt./fall: N/A

--

--



Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-09
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 3.5'-4.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR270-09		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
2			0.0	
3			0.0	
4			0.0	
5			6.8	
			2.7	
			5.8	
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-11		
Client: PESRM		Project Name: PES Refinery		Page 1 of 1		
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022		
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022		
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:		
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A		
		Sample Interval: 4.5'-5.0'		Datum: N/A		
				Total Depth: 5.0'		
				Hammer wt./fall: N/A		
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description		
1	GPR270-11		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt		
					0.0	
					0.0	
2					0.0	
					0.0	
3					3.6	
					2.7	
4					5.3	
					2.9	
5					7.9	
6				END OF BORING (5 ft.)		
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Ransom Consulting, LLC		Soil Boring Log		Boring No.: GPR270-13
Client: PESRM		Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135		Location: Philadelphia, PA		Date Start: 12/08/2022
Drilling Contractor: TPI		Driller:		Date Finish: 12/08/2022
Hole Diameter: 2"		Drilling Method: Geoprobe		Permit No.:
Logged By: Tyler Short		Sampling Method: Acetate Liner		Ground Elevation: N/A
		Sample Interval: 4.5'-5.0'		Datum: N/A
				Total Depth: 5.0'
				Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description
1	GPR270-13		0.0	0.0-5.0' Brown fine-to-coarse sandy FILL with some silt
2			0.0	
3			0.0	
4			0.0	
5			0.7	
6				END OF BORING (5 ft.)
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Appendix G

Release Notification



NOTIFICATION OF RELEASE (*Owners and Operators*)

FACILITY I.D. NUMBER 51 - 33624

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 Girard Point</u> Facility I.D. Number <u>51-33624</u> Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u> City State Zip Code <u>Philadelphia PA 19141 - 5299</u> County Municipality <u>Philadelphia Philadelphia</u> Contact Person Telephone Number <u>Anne R. Garr (312) 796 - 6564</u>	Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u> Address <u>111 S. Wacker Dr, Suite 3000</u> City State Zip Code <u>Chicago IL 60606 -</u> Telephone Number <u>(312) 796 - 6564</u> Operator Name Telephone Number <u>Anne R. Garr (312) 796 - 6564</u>

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

IV. CONFIRMED RELEASE INFORMATION (O/O Only)	
Date Release was Confirmed: <u>1 / 12 / 2023</u> m d y	Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified: Date: <u>1 / 24 / 2023</u> Municipality <u>Philadelphia</u> m d y
Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>1 / 12 / 2023</u> Office <u>Southeast Region</u> m d y	Date: _____ Municipality _____ m d y

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>025A</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) <u>Below AST concrete foundation</u> <input checked="" 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>Partial removal of concrete foundation</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 checked="" 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 checked="" type="checkbox"/>	<input 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) <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: 1 / 12 / 2023
m d y

Indication of Suspected Release / Contamination (Mark All That Apply

<input 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 checked="" type="checkbox"/> Other (Specify) <u>Free product observed below AST concrete foundation</u>
<input type="checkbox"/> Discovery of Holes in the Storage Tank	

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 1 / 12 / 2023
m d y

Extent of Confirmed Contamination (Mark All That Apply

<input type="checkbox"/> Product Stained or Product Saturated Soil or Backfill	<input type="checkbox"/> Free Product or Sheen on the Ground Water Surface
<input checked="" type="checkbox"/> Poned Product	<input type="checkbox"/> Free Product or Sheen on Surface Water
<input checked="" type="checkbox"/> Free Product or Sheen on Poned Water	<input checked="" type="checkbox"/> Other (Specify) <u>Free product observed below AST concrete foundation</u>

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. In preparation for Site Assessment soil sampling, concrete foundations associated with certain tanks in Tank Group 06, were partially removed to allow access for sampling. This notification is provided to PADEP to report that free product was encountered beneath the concrete pad at tank GP R 281 (025A). Following initial discovery of the free product, the facility contractor has initiated interim measures to recover the observed free product and poned water from beneath the tank foundation. The observed free product appears to be contained within the ring wall of the tank foundation. The volume of the release will be estimated once recovery efforts are complete.

Additional actions, including but not limited to Site Assessment sampling, site characterization sampling, and/or soil remediation (if necessary) will be performed.

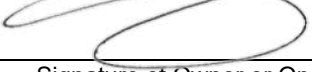
This notification is the second incident reported in Tank Group 06 (Incident #58434). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 06 will be combined with the incident number #58434.

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

OWNER OR OPERATOR CERTIFICATION

I, Anne R. Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.


Signature of Owner or Operator

01 / 18 / 2023
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



January 19, 2023

Ms. Lisa Strobridge
Pennsylvania Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, PA 19401

sent via electronic mail: lstrobridge@pa.gov

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 06
PADEP Facility ID #51-33624 – Girard Point Refinery
Incident No. 58434
Initial Notification
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

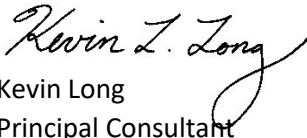
Dear Lisa:


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) Girard Point Refinery. The PADEP was notified via telephone on January 4, 2023, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 06, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at tank GPR-284 (004A), GPR-270 (021A), GPR-276 (023A), GPR-282 (026A), and GPR-285 (027A). This notification is the initial incident reported in Tank Group 06 (Incident #58434). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 06 will be combined with the incident number #58434.

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 06)

January 19, 2023
Ms. Lisa Strobridge
PADEP Notification of Release Form - Tank Group 06

cc: Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Bob Armstrong (rarmstrong@NorthStar.com)
PADEP – (ra-serotanks@pa.gov)
Ralph DiPietro (Philadelphia L & I – ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE (*Owners and Operators*)

FACILITY I.D. NUMBER 51 - 33624

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 Girard Point</u> Facility I.D. Number <u>51-33624</u> Street Address (P.O. Box not acceptable) <u>3144 W. Passyunk Avenue</u> City <u>Philadelphia</u> State <u>PA</u> Zip Code <u>19141 - 5299</u> County <u>Philadelphia</u> Municipality <u>Philadelphia</u> Contact Person <u>Anne R. Garr</u> Telephone Number <u>(312) 796 - 6564</u>	Owner Name <u>Philadelphia Energy Solutions Refining and Marketing LLC</u> Address <u>111 S. Wacker Dr, Suite 3000</u> City <u>Chicago</u> State <u>IL</u> Zip Code <u>60606 -</u> Telephone Number <u>(312) 796 - 6564</u> Operator Name <u>Anne R. Garr</u> Telephone Number <u>(312) 796 - 6564</u>

III. REGULATED SUBSTANCE INFORMATION		
A. Type of Product(s) Involved (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>	B. Quantity (Gallons) of Product(s) Released: <u>O/O Only</u>	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply <input checked="" type="checkbox"/>): <u>Both O/O and I/I</u>
Leaded Gasoline <input type="checkbox"/> <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>Vacuum Gas Oil, Recovered Oil, Light Naphtha</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>1 / 4 / 2023</u> Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified: Date: <u>1 / 4 / 2023</u> Office <u>Southeast Region</u>	Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified: Date: <u>1 / 19 / 2023</u> Municipality <u>Philadelphia</u> Date: _____ Municipality _____	
Source (Mark All That Apply <input checked="" type="checkbox"/>): <ul style="list-style-type: none"> Tank (DEP Assigned Nos. 004A, 021A, 023A, 026A, 027A) <input checked="" type="checkbox"/> Piping System (Aboveground Regulated) <input checked="" type="checkbox"/> Piping System (Underground Regulated) <input type="checkbox"/> Piping System (Non-Regulated) <input type="checkbox"/> Dispenser/Dispensing Equipment <input type="checkbox"/> Spill Prevention Equipment <input type="checkbox"/> Submersible Turbine Pump Head/Fittings <input type="checkbox"/> Containment/Sump Failure <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Unknown <input type="checkbox"/> 	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>): <ul style="list-style-type: none"> During Closure <input checked="" type="checkbox"/> Lining Installation <input type="checkbox"/> Routine Leak Detection <input type="checkbox"/> Third Party Inspection <input type="checkbox"/> Tightness Testing Activities <input type="checkbox"/> Visible Product or Odor Reports <input type="checkbox"/> Water in Tank <input type="checkbox"/> Construction <input type="checkbox"/> Upgrade/Repair <input type="checkbox"/> 	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>): <ul style="list-style-type: none"> Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Bedrock <input type="checkbox"/> Water Supplies <input type="checkbox"/> Vapors/Product in Buildings <input type="checkbox"/> Vapors/Product in Sewer/Utility Lines <input type="checkbox"/> Ecological Receptors <input type="checkbox"/>

Cause (Mark All That Apply <input checkbox"="" checked="" type="checkbox>):</th> </tr> </thead> <tbody> <tr> <td>Faulty Installation..... <input type="/> <td>Supply Well Sample Results..... <input type="checkbox"/></td>		Supply Well Sample Results..... <input type="checkbox"/>
Corrosion..... <input type="checkbox"/>	Monitoring Well Sample Results..... <input type="checkbox"/>	
Physical/Mechanical Failure..... <input type="checkbox"/>	Property Transfer..... <input type="checkbox"/>	
Spill During Delivery..... <input type="checkbox"/>	Other (Specify) <u>Site Assessment Sampling</u> <input checked="" type="checkbox"/>	
Overfill at Delivery..... <input type="checkbox"/>	Unknown..... <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: 1 / 4 / 2023
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: 1 / 4 / 2023
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 06 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, 1,3,5-trimethylbenzene, benzo(a)pyrene, 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 the initial incident reported in Tank Group 06. Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 06 will be combined with the incident number, once assigned.

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

OWNER OR OPERATOR CERTIFICATION

I, Anne R. Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.


Signature of Owner or Operator

01 / 19 / 2023
Date

CERTIFIED INSTALLER CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

Appendix H

Site Assessment and Historical Soil and Groundwater Results



Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR1047-01 GPR1047-01-SS01 4.5 - 5.0 Grab 12/8/2022	GPR1047-02 GPR1047-02-SS01 4.5 -5.0 Grab 12/8/2022	GPR1047-03 GPR1047-03-SS01 4.0 - 4.5 Grab 12/8/2022	GPR1047-03 DUP-54 4.0 - 4.5 Grab 12/8/2022 Field Duplicate	GPR1047-04 GPR1047-04-SS01 4.5 - 5.0 Grab 12/8/2022	GPR1047-06 GPR1047-06-SS01 4.0 - 4.5 Grab 12/8/2022	GPR1047-07 GPR1047-07-SS01 4.5 - 5.0 Grab 12/8/2022	GPR1101-01 GPR1101-01-SS01 4.5 - 5.0 Grab 12/9/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	NA	NA	NA	NA	NA	NA	NA	0.1 (0.047)
Cumene	10000	350	2500	NA	NA	NA	NA	NA	NA	NA	3.9 (0.093)
1,2-Dichloroethane	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA	ND (0.093)
Ethyl Benzene	1000	70	46	NA	NA	NA	NA	NA	NA	NA	0.055 J (0.093)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA	NA	ND (0.19)
Toluene	10000	100	44	NA	NA	NA	NA	NA	NA	NA	0.27 (0.093)
1,2,4-Trimethylbenzene	5400	53	300	NA	NA	NA	NA	NA	NA	NA	0.4 (0.19)
1,3,5-Trimethylbenzene	5400	53	93	NA	NA	NA	NA	NA	NA	NA	0.028 J (0.19)
Xylenes (total)	9100	1000	990	NA	NA	NA	NA	NA	NA	NA	0.44 J (0.093)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	NA	NA	NA	NA	NA	NA	NA	1.4 (0.14)
Benzo(a)anthracene	190000	0.39	--	NA	NA	NA	NA	NA	NA	NA	<u>0.5 (0.14)</u>
Benzo(a)pyrene	190000	0.02	--	NA	NA	NA	NA	NA	NA	NA	<u>0.3 (0.19)</u>
Benzo(b)fluoranthene	190000	0.12	--	NA	NA	NA	NA	NA	NA	NA	<u>0.38 (0.14)</u>
Benzo(g,h,i)perylene	190000	0.026	--	NA	NA	NA	NA	NA	NA	NA	<u>0.25 (0.19)</u>
Chrysene	190000	0.19	--	NA	NA	NA	NA	NA	NA	NA	<u>0.57 (0.14)</u>
Fluorene	190000	190	--	NA	NA	NA	NA	NA	NA	NA	3.2 (0.24)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	0.23 (0.19)
Naphthalene	77	10	25	NA	NA	NA	NA	NA	NA	NA	2.5 (0.24)
Phenanthrene	190000	110	--	NA	NA	NA	NA	NA	NA	NA	12 (0.28)
Pyrene	190000	13	--	NA	NA	NA	NA	NA	NA	NA	1.4 (0.14)
Physical Properties											
pH [SU]	--	--	--	8.7	7.5	8.7	10.7	8.8	9	10.7	NA
Metals											
Lead	190000	0.5	--	NA	NA	NA	NA	NA	NA	NA	<u>379 (2.77)</u>

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- 4 Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- 5 Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR1101-02 GPR1101-02-SS01 3.0 - 3.5 Grab 12/9/2022	GPR1101-03 GPR1101-03-SS01 4.0 - 4.5 Grab 12/9/2022	GPR1101-04 GPR1101-04-SS01 4.5 - 5.0 Grab 12/9/2022	GPR1101-05 GPR1101-05-SS01 4.0 - 4.5 Grab 12/9/2022	GPR270-01 GPR270-01-SS01 4.5 - 5.0 Grab 12/8/2022	GPR270-03 GPR270-03-SS01 3.5 - 4.0 Grab 12/8/2022	GPR270-07 GPR270-07-SS01 4.0 - 4.5 Grab 12/8/2022	GPR270-08 GPR270-08-SS01 4.5 - 5.0 Grab 12/8/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	0.08 (0.037)	0.022 J (0.05)	0.23 (0.078)	ND (0.0006)	0.036 J (0.054)	0.061 (0.057)	0.064 J (0.066)	ND (0.00059)
Cumene	10000	350	2500	0.39 (0.074)	1.1 (0.1)	1.9 (0.16)	0.0065 (0.0012)	0.048 J (0.11)	0.21 (0.11)	0.27 (0.13)	ND (0.0012)
1,2-Dichloroethane	98	0.5	0.1	ND (0.074)	ND (0.1)	ND (0.16)	ND (0.0012)	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.0012)
Ethyl Benzene	1000	70	46	0.16 (0.074)	0.047 J (0.1)	0.3 (0.16)	ND (0.0012)	0.051 J (0.11)	0.075 J (0.11)	0.075 J (0.13)	ND (0.0012)
Methyl tert-butyl ether	9800	2	1.4	ND (0.15)	ND (0.2)	ND (0.31)	ND (0.0024)	ND (0.22)	ND (0.23)	ND (0.26)	ND (0.0024)
Toluene	10000	100	44	0.2 (0.074)	0.3 (0.1)	0.29 (0.16)	ND (0.0012)	0.8 (0.11)	0.96 (0.11)	0.99 (0.13)	ND (0.0012)
1,2,4-Trimethylbenzene	5400	53	300	0.3 (0.15)	0.7 (0.2)	51 (1.6)	0.002 J (0.0024)	0.087 J (0.22)	0.12 J (0.23)	0.13 J (0.26)	ND (0.0024)
1,3,5-Trimethylbenzene	5400	53	93	0.064 J (0.15)	0.13 J (0.2)	21 (0.31)	ND (0.0024)	ND (0.22)	0.034 J (0.23)	0.035 J (0.26)	ND (0.0024)
Xylenes (total)	9100	1000	990	0.76 (0.074)	0.14 J (0.1)	2.7 (0.16)	0.0022 J (0.0012)	0.18 J (0.11)	0.25 J (0.11)	0.28 J (0.13)	ND (0.0012)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	0.21 (0.12)	0.22 (0.13)	<u>6.9 (0.61)</u>	0.24 (0.12)	2.7 (0.15)	5.3 (0.15)	4.7 (0.17)	ND (0.14)
Benzo(a)anthracene	190000	0.39	--	0.066 J (0.12)	0.16 (0.13)	<u>1.3 (0.61)</u>	0.15 (0.12)	<u>3.2 (0.15)</u>	<u>4.8 (0.15)</u>	<u>4.4 (0.17)</u>	0.045 J (0.14)
Benzo(a)pyrene	190000	0.02	--	<u>0.11 J (0.16)</u>	<u>0.14 J (0.18)</u>	<u>0.6 J (0.81)</u>	<u>0.2 (0.16)</u>	<u>3.1 (0.2)</u>	<u>2.9 (0.2)</u>	<u>2.8 (0.22)</u>	ND (0.18)
Benzo(b)fluoranthene	190000	0.12	--	0.11 J (0.12)	<u>0.17 (0.13)</u>	<u>0.67 (0.61)</u>	<u>0.18 (0.12)</u>	<u>3.7 (0.15)</u>	<u>3.3 (0.15)</u>	<u>3.5 (0.17)</u>	ND (0.14)
Benzo(g,h,i)perylene	190000	0.026	--	<u>0.18 (0.16)</u>	<u>0.13 J (0.18)</u>	<u>0.5 J (0.81)</u>	<u>0.32 (0.16)</u>	<u>2.2 (0.2)</u>	<u>1.4 (0.2)</u>	<u>1.4 (0.22)</u>	ND (0.18)
Chrysene	190000	0.19	--	<u>0.2 (0.12)</u>	0.18 (0.13)	<u>2.7 (0.61)</u>	<u>0.34 (0.12)</u>	<u>3.6 (0.15)</u>	<u>5.4 (0.15)</u>	<u>4.8 (0.17)</u>	0.037 J (0.14)
Fluorene	190000	190	--	0.12 J (0.2)	0.53 (0.22)	17 (1)	0.081 J (0.2)	2.1 (0.25)	6 (0.25)	5.4 (0.28)	ND (0.23)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	0.086 J (0.16)	0.12 J (0.18)	<u>0.26 J (0.81)</u>	0.13 J (0.16)	NA	NA	NA	NA
Naphthalene	77	10	25	0.22 (0.2)	0.37 (0.22)	ND (1)	0.098 J (0.2)	<u>15 (1.3)</u>	10 (1.2)	9.1 (0.28)	ND (0.23)
Phenanthrene	190000	110	--	0.33 (0.12)	1.2 (0.13)	40 (3)	0.3 (0.12)	5.8 (0.15)	23 (0.75)	20 (0.84)	0.053 J (0.14)
Pyrene	190000	13	--	0.48 (0.12)	0.32 (0.13)	8.3 (0.61)	0.8 (0.12)	6.1 (0.15)	13 (0.75)	12 (0.84)	0.054 J (0.14)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>380 (2.44)</u>	<u>396 (2.56)</u>	<u>99.4 (2.42)</u>	<u>169 (2.32)</u>	<u>341 (3.01)</u>	<u>450 (3.05)</u>	<u>537 (3.42)</u>	<u>14.9 (2.85)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR270-09 GPR270-09-SS01 3.5 - 4.0 Grab 12/8/2022	GPR270-11 GPR270-11-SS01 4.5 - 5.0 Grab 12/8/2022	GPR270-13 GPR270-13-SS01 4.5 - 5.0 Grab 12/8/2022	GPR276-01 GPR276-01-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-03 GPR276-03-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-05 GPR276-05-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-06 GPR276-06-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-07 GPR276-07-SS01 4.5 - 5.0 Grab 12/7/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	ND (0.00073)	ND (0.00087)	ND (0.00069)	0.04 J (0.064)	0.96 (0.056)	ND (0.00095)	ND (0.00056)	ND (0.00046)
Cumene	10000	350	2500	0.00073 J (0.0015)	0.0033 (0.0017)	ND (0.0014)	0.1 J (0.13)	1.1 (0.11)	ND (0.0019)	0.00047 J (0.0011)	ND (0.00092)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0015)	ND (0.0017)	ND (0.0014)	ND (0.13)	ND (0.11)	ND (0.0019)	ND (0.0011)	ND (0.00092)
Ethyl Benzene	1000	70	46	0.00026 J (0.0015)	0.0006 J (0.0017)	ND (0.0014)	0.06 J (0.13)	0.51 (0.11)	ND (0.0019)	0.00027 J (0.0011)	ND (0.00092)
Methyl tert-butyl ether	9800	2	1.4	0.0014 J (0.0029)	ND (0.0035)	ND (0.0028)	ND (0.25)	ND (0.23)	ND (0.0038)	ND (0.0022)	ND (0.0018)
Toluene	10000	100	44	ND (0.0015)	ND (0.0017)	ND (0.0014)	0.68 (0.13)	1.4 (0.11)	ND (0.0019)	ND (0.0011)	ND (0.00092)
1,2,4-Trimethylbenzene	5400	53	300	0.001 J (0.0029)	0.00098 J (0.0035)	ND (0.0028)	0.076 J (0.25)	0.77 (0.23)	ND (0.0038)	0.0033 (0.0022)	ND (0.0018)
1,3,5-Trimethylbenzene	5400	53	93	0.00032 J (0.0029)	0.00049 J (0.0035)	ND (0.0028)	0.028 J (0.25)	0.3 (0.23)	ND (0.0038)	0.0067 (0.0022)	ND (0.0018)
Xylenes (total)	9100	1000	990	0.0008 J (0.0015)	0.0033 J (0.0017)	ND (0.0014)	0.16 J (0.13)	1.8 (0.11)	ND (0.0019)	0.0052 (0.0011)	ND (0.00092)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	4.6 (0.13)	2.9 (0.16)	0.091 J (0.12)	2.8 (0.16)	0.28 (0.14)	1.1 (0.15)	0.27 (0.11)	1.4 (0.11)
Benzo(a)anthracene	190000	0.39	--	<u>4.8 (0.13)</u>	<u>2.1 (0.16)</u>	0.32 (0.12)	<u>2.3 (0.16)</u>	<u>0.68 (0.14)</u>	<u>1.5 (0.15)</u>	<u>0.49 (0.11)</u>	<u>2.2 (0.11)</u>
Benzo(a)pyrene	190000	0.02	--	<u>3.2 (0.18)</u>	<u>2.8 (0.21)</u>	<u>0.32 (0.16)</u>	<u>2.6 (0.22)</u>	<u>0.88 (0.18)</u>	<u>1.7 (0.2)</u>	<u>0.51 (0.15)</u>	<u>1.9 (0.14)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>4 (0.13)</u>	<u>2.9 (0.16)</u>	<u>0.42 (0.12)</u>	<u>2.7 (0.82)</u>	<u>1 (0.14)</u>	<u>1.8 (0.15)</u>	<u>0.57 (0.11)</u>	<u>2.2 (0.11)</u>
Benzo(g,h,i)perylene	190000	0.026	--	<u>1.6 (0.18)</u>	<u>3.5 (0.21)</u>	<u>0.2 (0.16)</u>	<u>1.3 (0.22)</u>	<u>0.68 (0.18)</u>	<u>0.99 (0.2)</u>	<u>0.28 (0.15)</u>	<u>0.86 (0.14)</u>
Chrysene	190000	0.19	--	<u>4.9 (0.13)</u>	<u>2.4 (0.16)</u>	<u>0.37 (0.12)</u>	<u>3.5 (0.16)</u>	<u>0.64 (0.14)</u>	<u>1.5 (0.15)</u>	<u>0.44 (0.11)</u>	<u>1.9 (0.11)</u>
Fluorene	190000	190	--	5 (0.22)	1.2 (0.26)	0.046 J (0.2)	3 (0.28)	0.2 J (0.23)	0.93 (0.24)	0.2 (0.19)	0.71 (0.18)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	7.7 (0.22)	<u>20 (1.3)</u>	0.03 J (0.2)	<u>14 (1.4)</u>	1.3 (0.23)	<u>16 (1.2)</u>	2 (0.19)	0.38 (0.18)
Phenanthrene	190000	110	--	13 (0.67)	5.7 (0.16)	0.31 (0.12)	5.5 (0.16)	0.72 (0.14)	3.9 (0.15)	0.96 (0.11)	4.6 (0.11)
Pyrene	190000	13	--	11 (0.67)	2.7 (0.16)	0.42 (0.12)	7 (0.16)	1.1 (0.14)	2.5 (0.15)	0.76 (0.11)	3.6 (0.11)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>400 (2.62)</u>	<u>589 (3.04)</u>	<u>215 (2.36)</u>	<u>475 (3.17)</u>	<u>84.6 (2.73)</u>	<u>198 (2.83)</u>	<u>82.9 (2.26)</u>	<u>896 (2.17)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR276-11 GPR276-11-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-12 GPR276-12-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-13 GPR276-13-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-15 GPR276-15-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-16 GPR276-16-SS01 4.5 - 5.0 Grab 12/7/2022	GPR276-17 GPR276-17-SS01 4.5 - 5.0 Grab 12/7/2022	GPR281-01 GPR281-01-SS01 4.5 - 5.0 Grab 12/6/2022	GPR281-07 GPR281-07-SS01 4.5 - 5.0 Grab 12/6/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	ND (0.00083)	7.9 (0.07)	ND (0.00081)	0.083 (0.028)	0.014 (0.0009)	0.17 (0.059)	ND (0.0008)	ND (0.0004)
Cumene	10000	350	2500	0.00046 J (0.0016)	1.4 (0.14)	ND (0.0016)	0.26 (0.056)	0.26 (0.0018)	1.4 (0.12)	ND (0.0016)	0.00015 J (0.00081)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0016)	ND (0.14)	ND (0.0016)	0.037 J (0.056)	ND (0.0018)	ND (0.12)	ND (0.0016)	ND (0.00081)
Ethyl Benzene	1000	70	46	ND (0.0016)	4.2 (0.14)	ND (0.0016)	0.087 (0.056)	ND (0.0018)	0.32 (0.12)	ND (0.0016)	ND (0.00081)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0033)	ND (0.28)	ND (0.0032)	ND (0.11)	ND (0.0036)	ND (0.24)	ND (0.0032)	ND (0.0016)
Toluene	10000	100	44	ND (0.0016)	4.8 (0.14)	ND (0.0016)	0.27 (0.056)	0.013 (0.0018)	1 (0.12)	ND (0.0016)	ND (0.00081)
1,2,4-Trimethylbenzene	5400	53	300	0.0022 J (0.0033)	2.8 (0.28)	ND (0.0032)	0.066 J (0.11)	0.024 (0.0036)	0.99 (0.24)	0.0014 J (0.0032)	0.0024 (0.0016)
1,3,5-Trimethylbenzene	5400	53	93	0.00063 J (0.0033)	0.9 (0.28)	ND (0.0032)	0.051 J (0.11)	0.013 (0.0036)	0.31 (0.24)	0.00052 J (0.0032)	ND (0.0016)
Xylenes (total)	9100	1000	990	0.00062 J (0.0016)	12 (0.14)	ND (0.0016)	0.4 J (0.056)	0.044 (0.0018)	1.6 (0.12)	ND (0.0016)	0.00084 (0.00081)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	0.85 (0.15)	1.4 (0.13)	1.4 (0.15)	0.17 (0.11)	<u>16 (0.29)</u>	0.96 (0.16)	0.23 (0.14)	0.061 J (0.11)
Benzo(a)anthracene	190000	0.39	--	<u>1.8 (0.15)</u>	<u>8.5 (0.64)</u>	<u>2.9 (0.15)</u>	0.35 (0.11)	<u>55 (2.9)</u>	<u>1.1 (0.16)</u>	0.24 (0.14)	0.19 (0.11)
Benzo(a)pyrene	190000	0.02	--	<u>2.2 (0.2)</u>	<u>9.2 (0.86)</u>	<u>4 (0.2)</u>	<u>0.38 (0.15)</u>	<u>59 (3.9)</u>	<u>1.8 (0.21)</u>	<u>0.3 (0.19)</u>	<u>0.061 J (0.15)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>2.4 (0.15)</u>	<u>10 (0.64)</u>	<u>4.4 (0.15)</u>	<u>0.47 (0.11)</u>	<u>56 (2.9)</u>	<u>1.9 (0.16)</u>	<u>0.34 (0.14)</u>	0.12 (0.11)
Benzo(g,h,i)perylene	190000	0.026	--	<u>1.5 (0.2)</u>	<u>5.4 (0.17)</u>	<u>2.6 (0.2)</u>	<u>0.22 (0.15)</u>	<u>45 (3.9)</u>	<u>1.4 (0.21)</u>	<u>0.19 (0.19)</u>	<u>0.044 J (0.15)</u>
Chrysene	190000	0.19	--	<u>1.7 (0.15)</u>	<u>7.2 (0.13)</u>	<u>3 (0.15)</u>	<u>0.37 (0.11)</u>	<u>60 (2.9)</u>	<u>1.2 (0.16)</u>	<u>0.26 (0.14)</u>	<u>0.55 (0.11)</u>
Fluorene	190000	190	--	0.49 (0.26)	0.4 (0.21)	0.79 (0.25)	0.13 J (0.18)	18 (0.48)	0.68 (0.26)	0.2 J (0.24)	0.14 J (0.19)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	7.9 (0.26)	4.2 (0.21)	<u>14 (1.2)</u>	5.8 (0.18)	6.4 (0.48)	8 (0.26)	4.5 (0.24)	0.032 J (0.19)
Phenanthrene	190000	110	--	2.7 (0.15)	3 (0.13)	4 (0.15)	0.73 (0.11)	<u>150 (2.9)</u>	2.6 (0.16)	0.71 (0.14)	0.33 (0.11)
Pyrene	190000	13	--	2.6 (0.15)	8 (0.13)	3.9 (0.15)	0.64 (0.11)	<u>160 (2.9)</u>	1.7 (0.16)	0.32 (0.14)	0.38 (0.11)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>397 (3.03)</u>	<u>131 (2.58)</u>	<u>167 (2.84)</u>	<u>7.08 (2.13)</u>	<u>284 (2.91)</u>	<u>383 (2.95)</u>	<u>284 (2.8)</u>	<u>33.7 (2.22)</u>

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- 4 Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- 5 Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR281-08 GPR281-08-SS01 4.5 - 5.0 Grab 12/6/2022	GPR281-10 GPR281-10-SS01 3.5 - 4.0 Grab 12/6/2022	GPR281-11 GPR281-11-SS01 4.5 - 5.0 Grab 12/6/2022	GPR281-12 GPR281-12-SS01 4.5 - 5.0 Grab 12/6/2022	GPR282-01 GPR282-01-SS01 4.5 - 5.0 Grab 12/6/2022	GPR282-03 GPR282-03-SS01 4.5 - 5.0 Grab 12/6/2022	GPR282-05 GPR282-05-SS01 4.0 - 4.5 Grab 12/6/2022	GPR282-07 GPR282-07-SS01 4.0 - 4.5 Grab 12/6/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	ND (0.00075)	ND (0.0011)	0.00037 J (0.00064)	0.00036 J (0.00054)	ND (0.00065)	ND (0.00057)	ND (0.0009)	ND (0.00082)
Cumene	10000	350	2500	ND (0.0015)	ND (0.0022)	ND (0.0013)	ND (0.0011)	ND (0.0013)	0.0013 (0.0011)	ND (0.0018)	ND (0.0016)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0015)	ND (0.0022)	ND (0.0013)	ND (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.0018)	ND (0.0016)
Ethyl Benzene	1000	70	46	ND (0.0015)	ND (0.0022)	0.00021 J (0.0013)	0.00016 J (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.0018)	ND (0.0016)
Methyl tert-butyl ether	9800	2	1.4	ND (0.003)	ND (0.0044)	ND (0.0026)	ND (0.0022)	ND (0.0026)	ND (0.0023)	ND (0.0036)	0.0009 J (0.0033)
Toluene	10000	100	44	ND (0.0015)	ND (0.0022)	ND (0.0013)	ND (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.0018)	ND (0.0016)
1,2,4-Trimethylbenzene	5400	53	300	0.00067 J (0.003)	0.00085 J (0.0044)	0.0012 J (0.0026)	0.00038 J (0.0022)	0.00053 J (0.0026)	0.00085 J (0.0023)	ND (0.0036)	ND (0.0033)
1,3,5-Trimethylbenzene	5400	53	93	ND (0.003)	ND (0.0044)	0.00045 J (0.0026)	ND (0.0022)	0.00028 J (0.0026)	0.00027 J (0.0023)	ND (0.0036)	ND (0.0033)
Xylenes (total)	9100	1000	990	ND (0.0015)	ND (0.0022)	0.0018 J (0.0013)	ND (0.0011)	ND (0.0013)	0.00045 J (0.0011)	ND (0.0018)	ND (0.0016)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	0.24 (0.14)	0.79 (0.15)	0.042 J (0.11)	ND (0.56)	1.3 (0.12)	0.34 (0.12)	0.99 (0.16)	0.52 (0.15)
Benzo(a)anthracene	190000	0.39	--	<u>0.42 (0.14)</u>	<u>1.9 (0.15)</u>	0.11 (0.11)	0.26 J (0.56)	<u>2.2 (0.12)</u>	0.3 (0.12)	<u>2.1 (0.16)</u>	<u>0.96 (0.15)</u>
Benzo(a)pyrene	190000	0.02	--	<u>0.51 (0.19)</u>	<u>1.9 (0.2)</u>	<u>0.1 J (0.15)</u>	ND (0.74)	<u>1.8 (0.17)</u>	<u>0.44 (0.16)</u>	<u>1.5 (0.22)</u>	<u>1.2 (0.2)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>0.58 (0.14)</u>	<u>2 (0.15)</u>	<u>0.17 (0.11)</u>	<u>0.19 J (0.56)</u>	<u>2.2 (0.12)</u>	<u>0.38 (0.12)</u>	<u>1.6 (0.16)</u>	<u>1.3 (0.15)</u>
Benzo(g,h,i)perylene	190000	0.026	--	<u>0.32 (0.19)</u>	<u>1 (0.2)</u>	<u>0.086 J (0.15)</u>	<u>0.11 J (0.74)</u>	<u>1 (0.17)</u>	<u>0.5 (0.16)</u>	<u>0.88 (0.22)</u>	<u>0.71 (0.2)</u>
Chrysene	190000	0.19	--	<u>0.47 (0.14)</u>	<u>1.9 (0.15)</u>	<u>0.36 (0.11)</u>	<u>0.64 (0.56)</u>	<u>1.8 (0.12)</u>	<u>0.47 (0.12)</u>	<u>1.8 (0.16)</u>	<u>1 (0.15)</u>
Fluorene	190000	190	--	0.21 J (0.24)	0.52 (0.25)	0.051 J (0.18)	0.092 J (0.93)	0.69 (0.21)	0.19 J (0.2)	0.37 (0.28)	0.38 (0.26)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	4.4 (0.24)	4.9 (0.25)	0.068 J (0.18)	ND (0.93)	3.4 (0.21)	2.5 (0.2)	0.86 (0.28)	3.2 (0.26)
Phenanthrene	190000	110	--	0.7 (0.14)	2.4 (0.15)	0.16 (0.11)	0.3 J (0.56)	4.3 (0.12)	0.82 (0.12)	2.8 (0.16)	1.7 (0.15)
Pyrene	190000	13	--	0.55 (0.14)	2.8 (0.15)	0.32 (0.11)	0.54 J (0.56)	3.8 (0.12)	0.44 (0.12)	3 (0.16)	1.6 (0.15)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>206 (2.79)</u>	<u>363 (2.98)</u>	<u>24.4 (2.24)</u>	<u>162 (11.2)</u>	<u>1520 (2.42)</u>	<u>184 (2.44)</u>	<u>412 (3.28)</u>	<u>493 (3.06)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR282-08 GPR282-08-SS01 4.5 - 5.0 Grab 12/6/2022	GPR282-10 GPR282-10-SS01 3.0 - 3.5 Grab 12/6/2022	GPR282-12 GPR282-12-SS01 4.0 - 4.5 Grab 12/6/2022	GPR284-01 GPR284-01-SS01 2.5 - 3.0 Grab 12/6/2022	GPR284-03 GPR284-03-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-05 GPR284-05-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-07 GPR284-07-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-08 GPR284-08-SS01 4.5 - 5.0 Grab 12/6/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	ND (0.00098)	0.094 (0.076)	ND (0.00066)	ND (0.00078)	ND (0.00068)	0.023 J (0.029)	ND (0.00077)	ND (0.0005)
Cumene	10000	350	2500	0.0017 J (0.002)	0.072 J (0.15)	ND (0.0013)	ND (0.0016)	ND (0.0014)	0.081 (0.058)	0.0026 (0.0015)	ND (0.001)
1,2-Dichloroethane	98	0.5	0.1	ND (0.002)	ND (0.15)	ND (0.0013)	ND (0.0016)	ND (0.0014)	ND (0.058)	ND (0.0015)	ND (0.001)
Ethyl Benzene	1000	70	46	0.00029 J (0.002)	0.11 J (0.15)	ND (0.0013)	ND (0.0016)	ND (0.0014)	0.087 (0.058)	0.00047 J (0.0015)	ND (0.001)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0039)	ND (0.3)	ND (0.0026)	ND (0.0031)	ND (0.0027)	ND (0.12)	ND (0.0031)	ND (0.002)
Toluene	10000	100	44	ND (0.002)	0.44 (0.15)	ND (0.0013)	ND (0.0016)	ND (0.0014)	ND (0.058)	ND (0.0015)	ND (0.001)
1,2,4-Trimethylbenzene	5400	53	300	0.0057 (0.0039)	0.22 J (0.3)	ND (0.0026)	ND (0.0031)	ND (0.0027)	0.75 (0.12)	0.00084 J (0.0031)	ND (0.002)
1,3,5-Trimethylbenzene	5400	53	93	0.0014 J (0.0039)	0.11 J (0.3)	0.00028 J (0.0026)	ND (0.0031)	ND (0.0027)	0.54 (0.12)	0.00054 J (0.0031)	ND (0.002)
Xylenes (total)	9100	1000	990	0.0055 J (0.002)	0.42 J (0.15)	ND (0.0013)	ND (0.0016)	ND (0.0014)	0.3 (0.058)	0.0011 J (0.0015)	ND (0.001)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	1.5 (0.16)	<u>9.6 (1.6)</u>	0.85 (0.35)	0.39 (0.13)	0.58 (0.14)	0.18 (0.11)	ND (0.66)	0.25 (0.12)
Benzo(a)anthracene	190000	0.39	--	<u>2 (0.16)</u>	<u>13 (1.6)</u>	<u>0.5 (0.35)</u>	<u>1.5 (0.13)</u>	<u>1.8 (0.14)</u>	<u>0.41 (0.11)</u>	0.37 J (0.66)	<u>1.2 (0.12)</u>
Benzo(a)pyrene	190000	0.02	--	<u>2 (0.22)</u>	<u>12 (2.1)</u>	<u>0.52 (0.46)</u>	<u>1.4 (0.18)</u>	<u>2 (0.18)</u>	<u>0.32 (0.15)</u>	<u>0.29 J (0.88)</u>	<u>1.1 (0.16)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>2.2 (0.16)</u>	<u>14 (1.6)</u>	<u>0.58 (0.35)</u>	<u>1.6 (0.13)</u>	<u>2.2 (0.14)</u>	<u>0.45 (0.11)</u>	<u>0.38 J (0.66)</u>	<u>1.2 (0.12)</u>
Benzo(g,h,i)perylene	190000	0.026	--	<u>1.3 (0.22)</u>	<u>5.9 (2.1)</u>	<u>0.59 (0.46)</u>	<u>0.64 (0.18)</u>	<u>1.2 (0.18)</u>	<u>0.25 (0.15)</u>	<u>0.36 J (0.88)</u>	<u>0.48 (0.16)</u>
Chrysene	190000	0.19	--	<u>2.2 (0.16)</u>	<u>12 (1.6)</u>	<u>0.53 (0.35)</u>	<u>1.3 (0.13)</u>	<u>1.7 (0.14)</u>	<u>1.1 (0.11)</u>	<u>0.56 J (0.66)</u>	<u>1 (0.12)</u>
Fluorene	190000	190	--	1.5 (0.27)	8.2 (2.6)	0.67 (0.58)	0.35 (0.22)	0.45 (0.23)	0.35 (0.18)	ND (1.1)	0.25 (0.2)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	7.7 (0.27)	5.3 (2.6)	9.6 (0.58)	3.2 (0.22)	4.9 (0.23)	0.65 (0.18)	0.93 J (1.1)	0.92 (0.2)
Phenanthrene	190000	110	--	4.5 (0.16)	28 (1.6)	2.4 (0.35)	1 (0.13)	1.4 (0.14)	1 (0.11)	0.62 J (0.66)	0.47 (0.12)
Pyrene	190000	13	--	4.4 (0.16)	<u>26 (1.6)</u>	0.81 (0.35)	1.9 (0.13)	2 (0.14)	0.91 (0.11)	0.42 J (0.66)	1.2 (0.12)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>343 (3.21)</u>	<u>411 (3.09)</u>	<u>295 (2.46)</u>	<u>112 (2.64)</u>	<u>63.3 (2.62)</u>	<u>125 (2.26)</u>	<u>186 (2.59)</u>	<u>92.5 (2.29)</u>

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- 4 Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- 5 Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR284-09 GPR284-09-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-10 GPR284-10-SS01 4.0 - 4.5 Grab 12/6/2022	GPR284-10 DUP-52 4.0 - 4.5 Grab 12/6/2022 Field Duplicate	GPR284-11 GPR284-11-SS01 4.0 - 4.5 Grab 12/6/2022	GPR284-13 GPR284-13-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-14 GPR284-14-SS01 4.5 - 5.0 Grab 12/6/2022	GPR284-15 GPR284-15-SS01 4.5 - 5.0 Grab 12/6/2022	GPR285-01 GPR285-01-SS01 4.5 - 5.0 Grab 12/7/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	ND (0.00066)	ND (0.00054)	ND (0.0012)	ND (0.00072)	ND (0.00082)	ND (0.00051)	0.0002 J (0.00053)	4 (0.054)
Cumene	10000	350	2500	0.0013 (0.0013)	0.00096 J (0.0011)	ND (0.0023)	ND (0.0014)	ND (0.0016)	ND (0.001)	ND (0.001)	4.1 (0.11)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0013)	ND (0.0011)	ND (0.0023)	ND (0.0014)	ND (0.0016)	ND (0.001)	ND (0.001)	ND (0.11)
Ethyl Benzene	1000	70	46	ND (0.0013)	ND (0.0011)	ND (0.0023)	ND (0.0014)	ND (0.0016)	ND (0.001)	ND (0.001)	7.4 (0.11)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0026)	ND (0.0022)	ND (0.0046)	ND (0.0029)	ND (0.0033)	ND (0.002)	ND (0.0021)	ND (0.22)
Toluene	10000	100	44	ND (0.0013)	ND (0.0011)	ND (0.0023)	ND (0.0014)	ND (0.0016)	ND (0.001)	ND (0.001)	12 (0.11)
1,2,4-Trimethylbenzene	5400	53	300	ND (0.0026)	0.00059 J (0.0022)	ND (0.0046)	ND (0.0029)	ND (0.0033)	ND (0.002)	ND (0.0021)	28 (0.22)
1,3,5-Trimethylbenzene	5400	53	93	ND (0.0026)	ND (0.0022)	ND (0.0046)	ND (0.0029)	ND (0.0033)	ND (0.002)	ND (0.0021)	30 (0.22)
Xylenes (total)	9100	1000	990	0.0024 J (0.0013)	0.002 J (0.0011)	ND (0.0023)	0.00099 J (0.0014)	0.0011 J (0.0016)	0.00076 J (0.001)	ND (0.001)	27 (0.11)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	0.78 (0.14)	0.72 (0.12)	0.64 (0.14)	0.66 (0.14)	2.7 (0.87)	0.57 (0.11)	0.52 (0.11)	0.71 (0.14)
Benzo(a)anthracene	190000	0.39	--	<u>2.8 (0.14)</u>	<u>2.8 (0.12)</u>	<u>2.9 (0.14)</u>	<u>3.4 (0.14)</u>	<u>20 (0.87)</u>	<u>2.5 (0.11)</u>	<u>2.4 (0.11)</u>	<u>1.4 (0.14)</u>
Benzo(a)pyrene	190000	0.02	--	<u>3 (0.18)</u>	<u>2.8 (0.16)</u>	<u>3.3 (0.19)</u>	<u>3.2 (0.19)</u>	<u>17 (1.2)</u>	<u>2.3 (0.15)</u>	<u>2 (0.15)</u>	<u>2.3 (0.18)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>3.5 (0.14)</u>	<u>3.1 (0.12)</u>	<u>3.6 (0.14)</u>	<u>3.8 (0.14)</u>	<u>19 (0.87)</u>	<u>2.7 (0.11)</u>	<u>2.7 (0.11)</u>	<u>2.5 (0.14)</u>
Benzo(g,h,i)perylene	190000	0.026	--	<u>1.4 (0.18)</u>	<u>1.3 (0.16)</u>	<u>1.5 (0.19)</u>	<u>1.6 (0.19)</u>	<u>6.6 (1.2)</u>	<u>1.2 (0.15)</u>	<u>1.1 (0.15)</u>	<u>1.7 (0.18)</u>
Chrysene	190000	0.19	--	<u>2.5 (0.14)</u>	<u>2.4 (0.12)</u>	<u>2.7 (0.14)</u>	<u>3 (0.14)</u>	<u>17 (0.87)</u>	<u>2.4 (0.11)</u>	<u>2.4 (0.11)</u>	<u>1.4 (0.14)</u>
Fluorene	190000	190	--	0.69 (0.23)	0.45 (0.2)	0.56 (0.23)	0.26 (0.24)	0.98 J (1.4)	0.65 (0.19)	0.038 J (0.19)	0.68 (0.23)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	5.2 (0.23)	4.2 (0.2)	4.1 (0.23)	3.3 (0.24)	6.7 (1.4)	2.8 (0.19)	0.049 J (0.19)	<u>11 (1.2)</u>
Phenanthrene	190000	110	--	2.3 (0.14)	2.3 (0.12)	1.5 (0.14)	1.7 (0.14)	4.7 (0.87)	2.7 (0.11)	2 (0.11)	2.1 (0.14)
Pyrene	190000	13	--	3.2 (0.14)	3.3 (0.12)	3.2 (0.14)	3.8 (0.14)	<u>23 (0.87)</u>	3.3 (0.11)	3.3 (0.11)	1.6 (0.14)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>89.5 (2.71)</u>	<u>95.3 (2.33)</u>	<u>69.8 (2.72)</u>	<u>59.1 (2.8)</u>	<u>87.6 (3.38)</u>	<u>30.1 (2.16)</u>	<u>5090 (2.22)</u>	<u>255 (2.76)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR285-02 GPR285-02-SS01 4.5 - 5.0 Grab 12/7/2022	GPR285-03 GPR285-03-SS01 4.5 - 5.0 Grab 12/7/2022	GPR285-07 GPR285-07-SS01 4.5 - 5.0 Grab 12/7/2022	GPR285-08 GPR285-08-SS01 4.5 - 5.0 Grab 12/7/2022	GPR285-08 DUP-53 4.5 - 5.0 Grab 12/7/2022 Field Duplicate	GPR285-11 GPR285-11-SS01 4.5 - 5.0 Grab 12/7/2022	GPR285-13 GPR285-13-SS01 4.5 - 5.0 Grab 12/7/2022	GPR286-01 GPR286-01-SS01 4.5 - 5.0 Grab 12/8/2022
Volatile Organic Compounds											
Benzene	330	0.5	0.13	0.00026 J (0.00078)	ND (0.00063)	12 (0.22)	ND (0.00082)	ND (0.00086)	ND (0.0008)	1.1 (0.11)	0.066 (0.062)
Cumene	10000	350	2500	0.00021 J (0.0016)	ND (0.0012)	18 (0.44)	ND (0.0016)	ND (0.0017)	ND (0.0016)	12 (0.21)	11 (0.12)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0016)	ND (0.0012)	ND (0.44)	ND (0.0016)	ND (0.0017)	ND (0.0016)	ND (0.21)	ND (0.12)
Ethyl Benzene	1000	70	46	0.00036 J (0.0016)	ND (0.0012)	51 (0.44)	ND (0.0016)	ND (0.0017)	ND (0.0016)	23 (0.21)	1.9 (0.12)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0031)	ND (0.0025)	ND (0.88)	ND (0.0033)	ND (0.0035)	ND (0.0032)	ND (0.42)	ND (0.25)
Toluene	10000	100	44	ND (0.0016)	ND (0.0012)	17 (0.44)	ND (0.0016)	ND (0.0017)	ND (0.0016)	6.9 (0.21)	1.2 (0.12)
1,2,4-Trimethylbenzene	5400	53	300	0.00063 J (0.0031)	ND (0.0025)	<u>210 (3.5)</u>	ND (0.0033)	ND (0.0035)	ND (0.0032)	<u>80 (4.2)</u>	5.2 (0.25)
1,3,5-Trimethylbenzene	5400	53	93	0.00077 J (0.0031)	ND (0.0025)	120 (0.88)	ND (0.0033)	ND (0.0035)	ND (0.0032)	<u>80 (4.2)</u>	0.37 (0.25)
Xylenes (total)	9100	1000	990	ND (0.0016)	ND (0.0012)	94 (0.44)	ND (0.0016)	ND (0.0017)	ND (0.0016)	39 (0.21)	7.1 (0.12)
Semivolatile Organic Compounds											
Anthracene	190000	6.6	--	0.7 (0.14)	0.68 (0.14)	0.59 (0.14)	0.5 (0.14)	0.8 (0.14)	0.77 (0.14)	2 (0.14)	1.2 (0.14)
Benzo(a)anthracene	190000	0.39	--	<u>2.2 (0.14)</u>	<u>1.2 (0.14)</u>	<u>0.41 (0.14)</u>	<u>1.2 (0.14)</u>	<u>1.9 (0.14)</u>	<u>1.6 (0.14)</u>	<u>4.9 (0.14)</u>	<u>3.1 (0.14)</u>
Benzo(a)pyrene	190000	0.02	--	<u>3.2 (0.19)</u>	<u>1.8 (0.18)</u>	<u>0.4 (0.19)</u>	<u>1.8 (0.18)</u>	<u>2.7 (0.19)</u>	<u>1.9 (0.19)</u>	<u>4.9 (0.19)</u>	<u>3.3 (0.19)</u>
Benzo(b)fluoranthene	190000	0.12	--	<u>3.5 (0.14)</u>	<u>2 (0.14)</u>	<u>0.59 (0.14)</u>	<u>1.8 (0.14)</u>	<u>3 (0.14)</u>	<u>2 (0.14)</u>	<u>5.8 (0.14)</u>	<u>4.5 (0.14)</u>
Benzo(g,h,i)perylene	190000	0.026	--	<u>1.8 (0.19)</u>	<u>1.4 (0.18)</u>	<u>0.33 (0.19)</u>	<u>1 (0.18)</u>	<u>1.6 (0.19)</u>	<u>1.2 (0.19)</u>	<u>4.5 (0.19)</u>	<u>2.3 (0.19)</u>
Chrysene	190000	0.19	--	<u>2 (0.14)</u>	<u>1.3 (0.14)</u>	<u>0.47 (0.14)</u>	<u>1.2 (0.14)</u>	<u>1.8 (0.14)</u>	<u>1.4 (0.14)</u>	<u>4.4 (0.14)</u>	<u>3.3 (0.14)</u>
Fluorene	190000	190	--	0.3 (0.24)	0.26 (0.23)	0.81 (0.24)	0.38 (0.23)	0.41 (0.24)	0.4 (0.24)	1.1 (0.23)	1 (0.24)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	6.1 (0.24)	4.1 (0.23)	<u>15 (1.2)</u>	7 (0.23)	6.9 (0.24)	7.6 (0.24)	<u>13 (1.2)</u>	<u>14 (1.2)</u>
Phenanthrene	190000	110	--	1.7 (0.14)	1.6 (0.14)	2.7 (0.14)	1.5 (0.14)	2 (0.14)	2.5 (0.14)	7.3 (0.14)	4.9 (0.14)
Pyrene	190000	13	--	2 (0.14)	1.6 (0.14)	0.83 (0.14)	1.2 (0.14)	1.4 (0.14)	2 (0.14)	6.8 (0.14)	5.5 (0.14)
Physical Properties											
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	190000	0.5	--	<u>80.6 (2.82)</u>	<u>296 (2.67)</u>	<u>287 (2.8)</u>	<u>160 (2.76)</u>	<u>212 (2.83)</u>	<u>113 (2.84)</u>	<u>129 (2.78)</u>	<u>143 (2.8)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H1

Summary of PESRM Subsurface Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GPR286-03 GPR286-03-SS01 4.5 - 5.0 Grab 12/8/2022	GPR286-05 GPR286-05-SS01 4.0 - 4.5 Grab 12/8/2022	GPR286-07 GPR286-07-SS01 4.5 - 5.0 Grab 12/8/2022	GPR286-08 GPR286-08-SS01 4.5 - 5.0 Grab 12/8/2022	GPR286-11 GPR286-11-SS01 4.5 - 5.0 Grab 12/8/2022	GPR286-13 GPR286-13-SS01 4.5 - 5.0 Grab 12/8/2022	GPR286-16 GPR286-16-SS01 4.0 - 4.5 Grab 12/8/2022
Volatile Organic Compounds										
Benzene	330	0.5	0.13	ND (0.00086)	ND (0.00063)	ND (0.0007)	ND (0.00085)	ND (0.026)	ND (0.001)	ND (0.001)
Cumene	10000	350	2500	0.00039 J (0.0017)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.57 (0.052)	ND (0.002)	ND (0.002)
1,2-Dichloroethane	98	0.5	0.1	ND (0.0017)	ND (0.0013)	ND (0.0014)	ND (0.0017)	ND (0.052)	ND (0.002)	ND (0.002)
Ethyl Benzene	1000	70	46	ND (0.0017)	ND (0.0013)	ND (0.0014)	ND (0.0017)	ND (0.052)	ND (0.002)	ND (0.002)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0034)	ND (0.0025)	ND (0.0028)	ND (0.0034)	ND (0.1)	ND (0.004)	ND (0.004)
Toluene	10000	100	44	ND (0.0017)	ND (0.0013)	ND (0.0014)	ND (0.0017)	ND (0.052)	ND (0.002)	ND (0.002)
1,2,4-Trimethylbenzene	5400	53	300	ND (0.0034)	ND (0.0025)	ND (0.0028)	ND (0.0034)	ND (0.1)	ND (0.004)	ND (0.004)
1,3,5-Trimethylbenzene	5400	53	93	ND (0.0034)	ND (0.0025)	ND (0.0028)	ND (0.0034)	ND (0.1)	ND (0.004)	ND (0.004)
Xylenes (total)	9100	1000	990	ND (0.0017)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.051 J (0.052)	ND (0.002)	ND (0.002)
Semivolatile Organic Compounds										
Anthracene	190000	6.6	--	0.39 (0.15)	ND (0.11)	0.56 (0.14)	0.077 J (0.14)	0.094 J (0.11)	0.9 (0.16)	ND (0.15)
Benzo(a)anthracene	190000	0.39	--	<u>0.97 (0.15)</u>	ND (0.11)	<u>1.7 (0.14)</u>	0.2 (0.14)	0.27 (0.11)	<u>1.7 (0.16)</u>	0.036 J (0.15)
Benzo(a)pyrene	190000	0.02	--	<u>1.1 (0.2)</u>	ND (0.15)	<u>2 (0.18)</u>	<u>0.22 (0.19)</u>	<u>0.33 (0.15)</u>	<u>2.5 (0.21)</u>	ND (0.2)
Benzo(b)fluoranthene	190000	0.12	--	<u>1.4 (0.15)</u>	ND (0.11)	<u>2.5 (0.14)</u>	<u>0.25 (0.14)</u>	<u>0.39 (0.11)</u>	<u>2.8 (0.16)</u>	ND (0.15)
Benzo(g,h,i)perylene	190000	0.026	--	<u>0.67 (0.2)</u>	ND (0.15)	<u>1.2 (0.18)</u>	<u>0.13 J (0.19)</u>	<u>0.21 (0.15)</u>	<u>1.9 (0.21)</u>	ND (0.2)
Chrysene	190000	0.19	--	<u>0.95 (0.15)</u>	ND (0.11)	<u>1.8 (0.14)</u>	<u>0.2 (0.14)</u>	<u>0.29 (0.11)</u>	<u>1.8 (0.16)</u>	0.032 J (0.15)
Fluorene	190000	190	--	0.27 (0.25)	ND (0.19)	0.36 (0.23)	0.054 J (0.24)	0.071 J (0.18)	0.46 (0.26)	ND (0.24)
Indeno(1,2,3-cd)pyrene	190000	0.23	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	77	10	25	6.4 (0.25)	ND (0.19)	6 (0.23)	0.59 (0.24)	1.2 (0.18)	10 (0.26)	ND (0.24)
Phenanthrene	190000	110	--	1.4 (0.15)	ND (0.11)	1.9 (0.14)	0.24 (0.14)	0.35 (0.11)	2.1 (0.16)	0.031 J (0.15)
Pyrene	190000	13	--	1.1 (0.15)	ND (0.11)	2.3 (0.14)	0.34 (0.14)	0.38 (0.11)	1.6 (0.16)	0.06 J (0.15)
Physical Properties										
pH [SU]	--	--	--	NA	NA	NA	NA	NA	NA	NA
Metals										
Lead	190000	0.5	--	<u>295 (2.94)</u>	<u>4.98 (2.26)</u>	<u>142 (2.66)</u>	<u>182 (2.88)</u>	<u>48.9 (2.19)</u>	<u>302 (3.13)</u>	<u>7.52 (2.93)</u>

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Underlined concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Boldfaced concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	1231-01 1231-01_0-2_20220830 0.0 - 2.0 8/30/2022	1231-02 1231-02_0-2_20220830 0.0 - 2.0 8/30/2022	1231-03 1231-03_0-2_20220830 0.0 - 2.0 8/30/2022	1231-03 1231-03_0-2_20220830_DUP 0.0 - 2.0 8/30/2022 Field Duplicate	1231-04 1231-04_0-2_20220830 0.0 - 2.0 8/30/2022	137-01 137-01_0-2_20220811 0.0 - 2.0 8/11/2022	137-01 137-01_0-2_20220811_DUP 0.0 - 2.0 8/11/2022 Field Duplicate	137-02 137-02_0-2_20220811 0.0 - 2.0 8/11/2022	
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.00055)	ND (0.00053)	0.001 (0.00052)	0.0047 (0.00052)	ND (0.00052)	ND (0.00046)	0.00069 (0.00044)	0.0019 (0.00069)	
Cumene	10000	2500	2500	ND (0.0022)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0018)	0.0153 (0.0028)	
Ethyl Benzene	880	70	46	ND (0.0011)	ND (0.0011)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00092)	ND (0.00088)	0.0016 (0.0014)	
Methyl tert-butyl ether	8500	2	1.4	ND (0.0011)	ND (0.0011)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00092)	ND (0.00088)	ND (0.0014)	
Toluene	10000	100	44	ND (0.0011)	0.0016 (0.0011)	ND (0.001)	0.0014 (0.001)	ND (0.001)	ND (0.00092)	ND (0.00088)	ND (0.0014)	
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0022)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0018)	0.014 (0.0028)	
1,3,5-Trimethylbenzene	4700	93	93	ND (0.0022)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0018)	ND (0.0018)	0.0059 (0.0028)	
Xylenes (total)	7900	1000	990	ND (0.0011)	ND (0.0011)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00092)	ND (0.00088)	0.0118 (0.0014)	
Semivolatile Organic Compounds												
Anthracene	190000	350	--	ND (0.036)	33.3 (3.9)	0.037 J (0.04)	ND (0.039)	0.0339 J (0.036)	0.587 (0.19)	0.218 (0.037)	0.41 (0.18)	
Benzo(a)anthracene	130	340	--	0.0159 J (0.036)	77.7 (3.9)	0.0351 J (0.04)	0.0317 J (0.039)	0.219 (0.036)	1.3 (0.19)	0.681 (0.037)	0.381 (0.18)	
Benzo(a)pyrene	91	46	--	ND (0.036)	74.4 (3.9)	0.101 (0.04)	0.0531 (0.039)	0.234 (0.036)	1.62 (0.19)	0.896 (0.037)	0.417 (0.18)	
Benzo(b)fluoranthene	76	170	--	0.0178 J (0.036)	<u>91.7 (3.9)</u>	0.136 (0.04)	0.109 (0.039)	0.328 (0.036)	1.54 (0.19)	0.867 (0.037)	0.427 (0.18)	
Benzo(g,h,i)perylene	190000	180	--	ND (0.036)	40.9 (3.9)	0.208 (0.04)	0.0932 (0.039)	0.167 (0.036)	0.486 (0.19)	0.233 (0.037)	0.163 J (0.18)	
Chrysene	760	230	--	0.0134 J (0.036)	71.8 (3.9)	0.0424 (0.04)	0.0463 (0.039)	0.235 (0.036)	1.42 (0.19)	0.779 (0.037)	0.717 (0.18)	
Fluorene	130000	3800	--	ND (0.036)	13.3 (0.19)	ND (0.04)	ND (0.039)	ND (0.036)	0.196 (0.19)	0.0561 (0.037)	ND (0.18)	
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	25	25	ND (0.0055)	0.197 (0.0053)	ND (0.0052)	ND (0.0052)	ND (0.0052)	ND (0.0046)	ND (0.0044)	0.0082 (0.0069)	
Phenanthrene	190000	10000	--	ND (0.036)	124 (3.9)	0.039 J (0.04)	0.0302 J (0.039)	0.122 (0.036)	1.88 (0.19)	0.651 (0.037)	1.84 (0.18)	
Pyrene	96000	2200	--	0.0156 J (0.036)	137 (3.9)	0.0421 (0.04)	0.0485 (0.039)	0.341 (0.036)	3.15 (0.19)	1.63 (0.037)	1.27 (0.18)	
Metals												
Lead	1000	450	--	29.2 (11)	702 (12)	198 (12)	233 (12)	224 (11)	113 (2.3)	136 (2.3)	839 (11)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	137-03 137-03_0-2_20220811 0.0 - 2.0 8/11/2022	137-04 137-04_0-2_20220811 0.0 - 2.0 8/11/2022	AOI7 BH-12-46 BH-12-46_0.5' 0.0 - 0.5 11/29/2012	AOI7 BH-12-47 BH-12-47_1.5' 1.0 - 1.5 11/29/2012	AOI7 BH-12-55 BH-12-55_1.5' 1.0 - 1.5 11/30/2012	AOI7 BH-12-56 BH-12-56_2' 1.5 - 2.0 11/28/2012	AOI7 BH-12-67 BH-12-67_2' 1.5 - 2.0 11/29/2012	AOI7 BH-12-68 BH-12-68_1.5' 1.0 - 1.5 11/29/2012
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.00057)	ND (0.00044)	ND (0.00082)	ND (0.092)	ND (0.00085)	ND (0.005)	ND (0.0014)	ND (0.00099)
Cumene	10000	2500	2500	ND (0.0023)	ND (0.0018)	ND (0.0041)	ND (0.46)	ND (0.0042)	ND (0.005)	ND (0.007)	ND (0.005)
Ethyl Benzene	880	70	46	ND (0.0011)	ND (0.00088)	ND (0.00082)	ND (0.092)	ND (0.00085)	ND (0.005)	ND (0.0014)	ND (0.00099)
Methyl tert-butyl ether	8500	2	1.4	ND (0.0011)	ND (0.00088)	ND (0.00082)	ND (0.092)	ND (0.00085)	ND (0.005)	0.0023 (0.0014)	ND (0.00099)
Toluene	10000	100	44	ND (0.0011)	ND (0.00088)	ND (0.00082)	0.288 (0.092)	ND (0.00085)	ND (0.005)	ND (0.0014)	ND (0.00099)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0023)	ND (0.0018)	ND (0.0041)	ND (0.46)	ND (0.0042)	ND (0.005)	ND (0.007)	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	0.0012 J (0.0023)	ND (0.0018)	ND (0.0041)	ND (0.46)	ND (0.0042)	ND (0.005)	ND (0.007)	ND (0.005)
Xylenes (total)	7900	1000	990	ND (0.0011)	ND (0.00088)	ND (0.00082)	0.111 (0.092)	ND (0.00085)	ND (0.005)	0.0025 (0.0014)	ND (0.00099)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.374 (0.18)	ND (0.035)	ND (0.032)	ND (0.39)	0.037 (0.037)	0.35 (0.02)	0.497 (0.071)	0.089 (0.033)
Benzo(a)anthracene	130	340	--	0.649 (0.18)	ND (0.035)	0.139 (0.032)	3.38 (0.39)	0.118 (0.037)	0.85 (0.02)	0.908 (0.071)	0.214 (0.033)
Benzo(a)pyrene	91	46	--	0.7 (0.18)	ND (0.035)	0.129 (0.032)	0.731 (0.39)	0.12 (0.037)	1 (0.02)	1.06 (0.071)	0.203 (0.033)
Benzo(b)fluoranthene	76	170	--	0.651 (0.18)	ND (0.035)	0.177 (0.032)	ND (0.39)	0.125 (0.037)	1.3 (0.02)	0.943 (0.071)	0.185 (0.033)
Benzo(g,h,i)perylene	190000	180	--	0.195 (0.18)	ND (0.035)	0.166 (0.032)	ND (0.39)	0.116 (0.037)	0.88 (0.02)	0.641 (0.071)	0.279 (0.033)
Chrysene	760	230	--	0.773 (0.18)	ND (0.035)	0.199 (0.032)	1.82 (0.39)	0.124 (0.037)	0.89 (0.02)	1.61 (0.071)	0.201 (0.033)
Fluorene	130000	3800	--	0.233 (0.18)	ND (0.035)	ND (0.032)	0.418 (0.39)	ND (0.037)	0.076 (0.02)	0.51 (0.071)	ND (0.033)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	ND (0.0057)	ND (0.0044)	ND (0.0041)	ND (0.46)	ND (0.0042)	1 (0.02)	ND (0.007)	ND (0.005)
Phenanthrene	190000	10000	--	1.5 (0.18)	ND (0.035)	0.183 (0.032)	2.95 (0.39)	0.0855 (0.037)	0.64 (0.02)	1.02 (0.071)	0.197 (0.033)
Pyrene	96000	2200	--	1.6 (0.18)	ND (0.035)	0.237 (0.032)	ND (0.39)	0.185 (0.037)	0.93 (0.02)	1.99 (0.071)	0.339 (0.033)
Metals											
Lead	1000	450	--	339 (2.3)	189 (2.1)	121 (7)	2060 (2.8)	112 (2.2)	743 (2.36)	583 (2.4)	240 (2.2)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-69 BH-12-69_2' 1.5 - 2.0 11/29/2012	AOI7 BH-12-70 BH-12-70_2' 1.5 - 2.0 11/28/2012	AOI7 BH-12-74 BH-12-74_1' 0.5 - 1.0 11/28/2012	AOI7 BH-12-75 BH-12-75_1' 0.5 - 1.0 11/28/2012	AOI7 BH-12-75 BH-12-75_2' 1.5 - 2.0 11/28/2012	AOI7 BH-12-76 BH-12-76_1' 0.5 - 1.0 11/28/2012	AOI7 BH-12-78 BH-12-78_1.0' 0.5 - 1.0 11/27/2012	AOI7 BH-12-78 BH-12-78_2.0' 1.5 - 2.0 11/27/2012	
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.00079)	ND (0.006)	0.027 (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.00088)	ND (0.001)	
Cumene	10000	2500	2500	ND (0.004)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0044)	ND (0.0052)	
Ethyl Benzene	880	70	46	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.00088)	ND (0.001)	
Methyl tert-butyl ether	8500	2	1.4	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.00088)	ND (0.001)	
Toluene	10000	100	44	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.00088)	ND (0.001)	
1,2,4-Trimethylbenzene	4700	300	300	ND (0.004)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0044)	ND (0.0052)	
1,3,5-Trimethylbenzene	4700	93	93	ND (0.004)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0044)	ND (0.0052)	
Xylenes (total)	7900	1000	990	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.00088)	ND (0.001)	
Semivolatile Organic Compounds												
Anthracene	190000	350	--	5.04 (0.61)	ND (0.018)	0.081 (0.02)	0.079 (0.019)	0.88 (0.2)	0.035 (0.019)	0.119 (0.033)	0.0605 (0.039)	
Benzo(a)anthracene	130	340	--	6.21 (0.61)	0.032 (0.018)	0.27 (0.02)	0.29 (0.019)	2.6 (0.2)	0.11 (0.019)	0.2 (0.033)	0.18 (0.039)	
Benzo(a)pyrene	91	46	--	4.06 (0.61)	0.039 (0.018)	0.36 (0.02)	0.32 (0.019)	2.8 (0.2)	0.099 (0.019)	0.15 (0.033)	0.207 (0.039)	
Benzo(b)fluoranthene	76	170	--	3.28 (0.61)	0.057 (0.018)	0.47 (0.02)	0.44 (0.019)	3.5 (0.2)	0.13 (0.019)	0.176 (0.033)	0.235 (0.039)	
Benzo(g,h,i)perylene	190000	180	--	1.69 (0.61)	0.039 (0.018)	0.41 (0.02)	0.29 (0.019)	1.9 (0.2)	0.059 (0.019)	0.0889 (0.033)	0.222 (0.039)	
Chrysene	760	230	--	5.53 (0.61)	0.032 (0.018)	0.45 (0.02)	0.39 (0.019)	2.9 (0.2)	0.14 (0.019)	0.205 (0.033)	0.202 (0.039)	
Fluorene	130000	3800	--	1.74 (0.03)	ND (0.018)	ND (0.02)	ND (0.019)	0.33 (0.2)	ND (0.019)	0.0695 (0.033)	ND (0.039)	
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	25	25	ND (0.004)	0.025 (0.018)	0.13 (0.02)	0.19 (0.019)	0.43 (0.2)	0.027 (0.019)	ND (0.0044)	ND (0.0052)	
Phenanthrene	190000	10000	--	17.9 (0.61)	0.026 (0.018)	0.41 (0.02)	0.32 (0.019)	2.7 (0.2)	0.16 (0.019)	0.584 (0.033)	0.115 (0.039)	
Pyrene	96000	2200	--	14.4 (0.61)	0.039 (0.018)	0.46 (0.02)	0.43 (0.019)	4.3 (0.2)	0.18 (0.019)	0.35 (0.033)	0.212 (0.039)	
Metals												
Lead	1000	450	--	14.7 (2.2)	13.8 (0.212)	254 (1.16)	335 (1.12)	551 (2.27)	143 (0.542)	237 (2.2)	128 (2.4)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-79 BH-12-79_1.0' 0.5 - 1.0 11/27/2012	AOI7 BH-12-82 BH-12-82_1.0' 0.5 - 1.0 11/27/2012	AOI7 BH-12-83 BH-12-83_1.0' 0.5 - 1.0 11/27/2012	AOI7 BH-12-85 BH-12-85_1.5' 1.0 - 1.5 11/27/2012	AOI7 BH-12-87 BH-12-87_1.0' 0.5 - 1.0 11/27/2012	AOI7 BH-12-91 BH-12-91_0.5' 0.0 - 0.5 11/27/2012	AOI7 BH-12-92 BH-12-92_0.5' 0.0 - 0.5 11/27/2012	AOI7 BH-12-94 BH-12-94_1.0' 0.5 - 1.0 11/27/2012	
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)	ND (0.00088)	ND (0.00083)	ND (0.0012)	
Cumene	10000	2500	2500	ND (0.0055)	ND (0.0049)	ND (0.0056)	ND (0.0078)	ND (0.0062)	ND (0.0044)	ND (0.0041)	ND (0.0058)	
Ethyl Benzene	880	70	46	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)	ND (0.00088)	ND (0.00083)	ND (0.0012)	
Methyl tert-butyl ether	8500	2	1.4	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)	ND (0.00088)	ND (0.00083)	ND (0.0012)	
Toluene	10000	100	44	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)	ND (0.00088)	ND (0.00083)	ND (0.0012)	
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0055)	ND (0.0049)	ND (0.0056)	ND (0.0078)	ND (0.0062)	ND (0.0044)	ND (0.0041)	ND (0.0058)	
1,3,5-Trimethylbenzene	4700	93	93	ND (0.0055)	ND (0.0049)	ND (0.0056)	ND (0.0078)	ND (0.0062)	ND (0.0044)	ND (0.0041)	ND (0.0058)	
Xylenes (total)	7900	1000	990	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)	ND (0.00088)	ND (0.00083)	ND (0.0012)	
Semivolatile Organic Compounds												
Anthracene	190000	350	--	0.0638 (0.037)	ND (0.036)	ND (0.031)	0.0562 (0.043)	0.223 (0.041)	0.0677 (0.038)	ND (0.034)	0.162 (0.036)	
Benzo(a)anthracene	130	340	--	0.265 (0.037)	0.0384 (0.036)	ND (0.031)	0.128 (0.043)	0.67 (0.041)	0.401 (0.038)	ND (0.034)	0.816 (0.036)	
Benzo(a)pyrene	91	46	--	0.244 (0.037)	ND (0.036)	ND (0.031)	0.183 (0.043)	0.775 (0.041)	0.403 (0.038)	ND (0.034)	0.782 (0.036)	
Benzo(b)fluoranthene	76	170	--	0.282 (0.037)	ND (0.036)	ND (0.031)	0.259 (0.043)	0.815 (0.041)	0.76 (0.038)	ND (0.034)	0.952 (0.036)	
Benzo(g,h,i)perylene	190000	180	--	0.179 (0.037)	0.106 (0.036)	ND (0.031)	0.197 (0.043)	0.617 (0.041)	0.463 (0.038)	ND (0.034)	0.538 (0.036)	
Chrysene	760	230	--	0.253 (0.037)	0.0408 (0.036)	ND (0.031)	0.159 (0.043)	0.718 (0.041)	0.622 (0.038)	ND (0.034)	0.904 (0.036)	
Fluorene	130000	3800	--	ND (0.037)	ND (0.036)	ND (0.031)	ND (0.043)	0.0663 (0.041)	ND (0.038)	ND (0.034)	ND (0.036)	
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	25	25	ND (0.0055)	ND (0.0049)	ND (0.0056)	ND (0.0078)	ND (0.0062)	ND (0.0044)	ND (0.0041)	ND (0.0058)	
Phenanthrene	190000	10000	--	0.243 (0.037)	ND (0.036)	ND (0.031)	0.0803 (0.043)	0.737 (0.041)	0.122 (0.038)	ND (0.034)	1.03 (0.036)	
Pyrene	96000	2200	--	0.39 (0.037)	0.0396 (0.036)	ND (0.031)	0.111 (0.043)	0.884 (0.041)	0.91 (0.038)	ND (0.034)	1.54 (0.036)	
Metals												
Lead	1000	450	--	498 (2.3)	116 (13)	16.2 (2.2)	145 (2.8)	870 (2.8)	291 (24)	30.2 (2.1)	1340 (2.6)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-98 BH-12-98_1' 0.5 - 1.0 11/28/2012	AOI7 BH-12-99 BH-12-99_0.5' 0.0 - 0.5 11/28/2012	AOI7-BH-01-2019 AOI7-BH-01-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-05-2019 AOI7-BH-05-2019(1.5-2.0) 1.5 - 2.0 3/22/2019	AOI7-BH-06-2019 AOI7-BH-06-2019(0.5-1.0) 0.5 - 1.0 3/26/2019	AOI7-BH-07-2019 AOI7-BH-07-2019(1.5-2.0) 1.5 - 2.0 3/26/2019	AOI7-BH-08-2019 AOI7-BH-08-2019(0.25-0.5) 0.3 - 0.5 3/26/2019	AOI7-BH-09-2019 AOI7-BH-09-2019(0.25-0.5) 0.3 - 0.5 3/26/2019
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.53 (0.38)	ND (0.006)	0.003 J (0.008)	0.46 (0.28)	0.001 J (0.007)	ND (0.004)	40 (4.4)	0.002 J (0.005)
Cumene	10000	2500	2500	7.6 (0.38)	ND (0.006)	ND (0.008)	1.2 (0.28)	ND (0.007)	ND (0.004)	41 (4.4)	ND (0.005)
Ethyl Benzene	880	70	46	0.18 J (0.38)	ND (0.006)	ND (0.008)	0.12 J (0.28)	ND (0.007)	ND (0.004)	20 (0.44)	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	ND (0.38)	ND (0.006)	ND (0.008)	ND (0.28)	ND (0.007)	ND (0.004)	ND (0.44)	ND (0.005)
Toluene	10000	100	44	2 (0.38)	ND (0.006)	0.002 J (0.008)	0.25 J (0.28)	0.001 J (0.007)	0.0003 J (0.004)	130 (4.4)	0.001 J (0.005)
1,2,4-Trimethylbenzene	4700	300	300	7.3 (0.38)	ND (0.006)	0.001 J (0.008)	0.17 J (0.28)	ND (0.007)	ND (0.004)	26 (0.44)	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.38)	ND (0.006)	ND (0.008)	0.048 J (0.28)	ND (0.007)	ND (0.004)	9.8 (0.44)	ND (0.005)
Xylenes (total)	7900	1000	990	0.57 (0.38)	ND (0.006)	ND (0.008)	0.76 (0.28)	ND (0.007)	ND (0.004)	140 (4.4)	ND (0.005)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.17 J (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	0.34 (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	0.32 (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	0.59 (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.32 (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Chrysene	760	230	--	0.42 (0.22)	16 (15)	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	--	0.077 J (0.22)	400 (15)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.79 (0.22)	ND (15)	0.001 J (0.008)	ND (0.28)	ND (0.007)	ND (0.004)	2 (0.44)	ND (0.005)
Phenanthrene	190000	10000	--	0.7 (0.22)	180 (15)	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	--	0.53 (0.22)	ND (15)	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	450	--	955 (2.5)	341 (1.43)	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-11-2019 AOI7-BH-11-2019(1.5-2.0) 1.5 - 2.0 3/26/2019	AOI7-BH-12-2019 AOI7-BH-12-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-13-2019 AOI7-BH-13-2019(1.5-2.0) 1.5 - 2.0 3/26/2019	AOI7-BH-13-45 AOI7-BH-13-45_1.5-2_031313 1.5 - 2.0 3/13/2013	AOI7-BH-13-46 AOI7-BH-13-46_1.5-2_031313 1.5 - 2.0 3/13/2013	AOI7-BH-13-47 AOI7-BH-13-47_1.5-2_031313 1.5 - 2.0 3/13/2013	AOI7-BH-13-48 AOI7-BH-13-48_1.5-2_031313 1.5 - 2.0 3/13/2013	AOI7-BH-13-50 AOI7-BH-13-50_0-0.5_031913 0.0 - 0.5 3/19/2013
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.25)	0.068 J (0.22)	1.2 (0.42)	ND (0.14)	ND (0.00086)	ND (0.12)	2.66 (0.088)	ND (0.0039)
Cumene	10000	2500	2500	ND (0.25)	ND (0.22)	0.043 J (0.42)	ND (0.69)	ND (0.0043)	ND (0.58)	ND (0.44)	ND (0.019)
Ethyl Benzene	880	70	46	ND (0.25)	ND (0.22)	0.13 J (0.42)	ND (0.14)	ND (0.00086)	ND (0.12)	0.643 (0.088)	ND (0.0039)
Methyl tert-butyl ether	8500	2	1.4	ND (0.25)	ND (0.22)	ND (0.42)	ND (0.14)	ND (0.00086)	ND (0.12)	ND (0.088)	ND (0.0039)
Toluene	10000	100	44	0.031 J (0.25)	0.024 J (0.22)	1 (0.42)	0.14 (0.14)	ND (0.00086)	0.252 (0.12)	3.45 (0.088)	ND (0.0039)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.25)	0.035 J (0.22)	0.18 J (0.42)	ND (0.69)	ND (0.0043)	ND (0.58)	0.499 (0.44)	ND (0.019)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.25)	ND (0.22)	0.091 J (0.42)	ND (0.69)	ND (0.0043)	ND (0.58)	ND (0.44)	ND (0.019)
Xylenes (total)	7900	1000	990	ND (0.25)	ND (0.22)	0.78 (0.42)	0.474 (0.14)	ND (0.00086)	0.255 (0.12)	4.53 (0.088)	ND (0.0039)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	NA	NA	ND (0.21)	0.0831 (0.037)	0.459 (0.042)	0.332 (0.034)	0.11 (0.038)
Benzo(a)anthracene	130	340	--	NA	NA	NA	0.482 (0.21)	0.335 (0.037)	1.23 (0.042)	0.797 (0.034)	0.188 (0.038)
Benzo(a)pyrene	91	46	--	NA	NA	NA	0.395 (0.21)	0.347 (0.037)	1.25 (0.042)	0.934 (0.034)	0.197 (0.038)
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	0.425 (0.21)	0.535 (0.037)	1.14 (0.042)	1.1 (0.034)	0.184 (0.038)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	0.485 (0.21)	0.309 (0.037)	0.818 (0.042)	0.59 (0.034)	0.516 (0.038)
Chrysene	760	230	--	NA	NA	NA	1.26 (0.21)	0.546 (0.037)	1.4 (0.042)	1 (0.034)	0.219 (0.038)
Fluorene	130000	3800	--	NA	NA	NA	ND (0.21)	ND (0.037)	0.211 (0.042)	0.428 (0.034)	0.0427 (0.038)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.078 J (0.25)	0.16 J (0.22)	0.1 J (0.42)	ND (0.21)	ND (0.037)	0.19 (0.042)	0.12 (0.034)	0.088 (0.038)
Phenanthrene	190000	10000	--	NA	NA	NA	0.246 (0.21)	0.266 (0.037)	1.07 (0.042)	0.214 (0.034)	0.269 (0.038)
Pyrene	96000	2200	--	NA	NA	NA	1.39 (0.21)	0.585 (0.037)	1.46 (0.042)	1.51 (0.034)	0.243 (0.038)
Metals											
Lead	1000	450	--	NA	NA	NA	498 (2)	237 (2.2)	866 (2)	275 (2.2)	281 (2)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-14-2019 AOI7-BH-14-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-15-2019 AOI7-BH-15-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-16-001 AOI7-BH-16-001-0-2-070116 0.0 - 2.0 7/1/2016	AOI7-BH-16-002 AOI7-BH-16-002-0-2-071216 0.0 - 2.0 7/12/2016	AOI7-BH-16-003 AOI7-BH-16-003-0-2-071216 0.0 - 2.0 7/12/2016	AOI7-BH-16-005 AOI7-BH-16-005-0-2-062816 0.0 - 2.0 6/28/2016	AOI7-BH-16-006 AOI7-BH-16-006-0-2-062816 0.0 - 2.0 6/28/2016	AOI7-BH-16-007 AOI7-BH-16-007-0-2-062816 0.0 - 2.0 6/28/2016
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.19 J (0.27)	8.3 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	ND (0.24)	ND (0.005)
Cumene	10000	2500	2500	0.068 (0.007)	0.47 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	ND (0.24)	ND (0.005)
Ethyl Benzene	880	70	46	0.26 (0.007)	2.1 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	ND (0.24)	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	ND (0.007)	ND (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	ND (0.24)	ND (0.005)
Toluene	10000	100	44	0.2 J (0.27)	12 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	ND (0.24)	ND (0.005)
1,2,4-Trimethylbenzene	4700	300	300	0.31 (0.007)	3.3 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	0.62 (0.24)	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	0.13 (0.007)	1.2 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	0.13 J (0.24)	ND (0.005)
Xylenes (total)	7900	1000	990	0.15 J (0.27)	13 (0.23)	ND (0.004)	ND (0.005)	ND (0.004)	ND (0.006)	0.2 J (0.24)	ND (0.005)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	NA	0.005 J (0.018)	0.02 (0.019)	ND (0.018)	0.59 (0.023)	0.6 (0.095)	0.067 (0.021)
Benzo(a)anthracene	130	340	--	NA	NA	0.017 J (0.018)	0.088 (0.019)	ND (0.018)	0.77 (0.023)	0.83 (0.095)	0.078 (0.021)
Benzo(a)pyrene	91	46	--	NA	NA	0.017 J (0.018)	0.062 (0.019)	ND (0.018)	0.66 (0.023)	1 (0.095)	0.053 (0.021)
Benzo(b)fluoranthene	76	170	--	NA	NA	0.026 (0.018)	0.085 (0.019)	ND (0.018)	0.79 (0.023)	1.3 (0.095)	0.094 (0.021)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	0.019 (0.018)	0.051 (0.019)	0.008 J (0.018)	0.6 (0.023)	0.42 (0.095)	0.11 (0.021)
Chrysene	760	230	--	NA	NA	0.018 J (0.018)	0.2 (0.019)	ND (0.018)	0.89 (0.023)	4.7 (0.095)	0.086 (0.021)
Fluorene	130000	3800	--	NA	NA	ND (0.018)	0.015 J (0.019)	ND (0.018)	0.22 (0.023)	3.1 (0.095)	0.023 (0.021)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.007 J (0.007)	0.16 J (0.23)	0.009 J (0.018)	0.019 J (0.019)	ND (0.018)	5.2 (0.023)	0.3 (0.095)	0.28 (0.021)
Phenanthrene	190000	10000	--	NA	NA	0.015 J (0.018)	0.15 (0.019)	0.005 J (0.018)	1.7 (0.023)	8.7 (0.095)	0.15 (0.021)
Pyrene	96000	2200	--	NA	NA	0.025 (0.018)	0.11 (0.019)	0.006 J (0.018)	0.87 (0.023)	2.8 (0.095)	0.098 (0.021)
Metals											
Lead	1000	450	--	NA	NA	10.2 (1.12)	98.3 (6.34)	ND (13.4)	130 (1.41)	63.6 (5.86)	241 (7.72)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-008 AOI7-BH-16-008-0-2-062816 0.0 - 2.0 6/28/2016	AOI7-BH-16-009 AOI7-BH-16-009-062816-0-2 0.0 - 2.0 6/28/2016	AOI7-BH-16-010 AOI7-BH-16-010-062816-0-2 0.0 - 2.0 6/28/2016	AOI7-BH-16-011 AOI7-BH-16-011-062816-0-2 0.0 - 2.0 6/28/2016	AOI7-BH-16-012 AOI7-BH-16-012-062816-0-2 0.0 - 2.0 6/28/2016	AOI7-BH-16-013 AOI7-BH-16-013-0-2-062916 0.0 - 2.0 6/29/2016	AOI7-BH-16-014 AOI7-BH-16-014-0-2-062916 0.0 - 2.0 6/29/2016	AOI7-BH-16-015 AOI7-BH-16-015-0-2-062916 0.0 - 2.0 6/29/2016
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.0008 J (0.005)	0.002 J (0.005)	ND (0.007)	ND (0.006)	0.079 J (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Cumene	10000	2500	2500	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Ethyl Benzene	880	70	46	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Methyl tert-butyl ether	8500	2	1.4	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Toluene	10000	100	44	0.002 J (0.005)	0.002 J (0.005)	0.001 J (0.007)	ND (0.006)	0.81 (0.64)	0.28 J (0.66)	ND (0.007)	ND (0.008)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Xylenes (total)	7900	1000	990	ND (0.005)	ND (0.005)	ND (0.007)	ND (0.006)	0.22 J (0.64)	ND (0.66)	ND (0.007)	ND (0.008)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.1 (0.02)	0.11 (0.021)	1.1 (0.049)	0.91 (0.048)	2.4 (0.061)	2.5 (0.061)	1.6 (0.26)	1.2 (0.053)
Benzo(a)anthracene	130	340	--	0.13 (0.02)	0.24 (0.021)	2.7 (0.049)	0.96 (0.048)	2 (0.061)	2.2 (0.061)	1.3 (0.26)	1.4 (0.053)
Benzo(a)pyrene	91	46	--	0.2 (0.02)	0.26 (0.021)	2.1 (0.049)	0.81 (0.048)	1.5 (0.061)	1.3 (0.061)	1.2 (0.26)	1.3 (0.053)
Benzo(b)fluoranthene	76	170	--	0.17 (0.02)	0.52 (0.021)	2.7 (0.049)	1.2 (0.048)	1.8 (0.061)	1.8 (0.061)	1.9 (0.26)	1.8 (0.053)
Benzo(g,h,i)perylene	190000	180	--	0.14 (0.02)	0.51 (0.021)	1.4 (0.049)	0.72 (0.048)	1.1 (0.061)	0.75 (0.061)	1.2 (0.26)	1.3 (0.053)
Chrysene	760	230	--	0.45 (0.02)	0.4 (0.021)	2.9 (0.049)	1.2 (0.048)	2.4 (0.061)	2.8 (0.061)	1.7 (0.26)	1.8 (0.053)
Fluorene	130000	3800	--	0.043 (0.02)	0.035 (0.021)	0.54 (0.049)	0.43 (0.048)	2 (0.061)	2.2 (0.061)	0.88 (0.26)	0.47 (0.053)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.34 (0.02)	0.48 (0.021)	10 (0.049)	9.5 (0.048)	11 (0.061)	8 (0.061)	22 (0.26)	12 (0.053)
Phenanthrene	190000	10000	--	0.25 (0.02)	0.27 (0.021)	3.9 (0.049)	3 (0.048)	4.3 (0.061)	5.9 (0.061)	5 (0.26)	3.4 (0.053)
Pyrene	96000	2200	--	0.23 (0.02)	0.4 (0.021)	3.6 (0.049)	1.2 (0.048)	4.2 (0.061)	6.3 (0.061)	1.9 (0.26)	1.6 (0.053)
Metals											
Lead	1000	450	--	85.4 (6.55)	526 (7)	399 (8.61)	321 (2.07)	295 (2.19)	418 (1.92)	566 (2.26)	386 (1.9)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-016 AOI7-BH-16-016-062816-0-2 0.0 - 2.0 6/28/2016	AOI7-BH-16-017 AOI7-BH-16-017-0-2-071116 0.0 - 2.0 7/11/2016	AOI7-BH-16-019 AOI7-BH-16-019-0-2-070616 0.0 - 2.0 7/6/2016	AOI7-BH-16-020 AOI7-BH-16-020-0-2-062816 0.0 - 2.0 6/28/2016	AOI7-BH-16-020 AOI7-BH-16-020-0-2-070116 0.0 - 2.0 7/1/2016	AOI7-BH-16-021 AOI7-BH-16-021-0-2-063016 0.0 - 2.0 6/30/2016	AOI7-BH-16-022 AOI7-BH-16-022-0-2-070516 0.0 - 2.0 7/5/2016	AOI7-BH-16-023 AOI7-BH-16-023-0-2-070116 0.0 - 2.0 7/1/2016
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.004)	NA	0.0006 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Cumene	10000	2500	2500	ND (0.004)	NA	0.002 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Ethyl Benzene	880	70	46	ND (0.004)	NA	ND (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	ND (0.004)	NA	ND (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Toluene	10000	100	44	ND (0.004)	NA	0.0009 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	0.002 J (0.005)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.004)	NA	0.002 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.004)	NA	0.002 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Xylenes (total)	7900	1000	990	ND (0.004)	NA	0.002 J (0.004)	ND (0.009)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.005)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.012 J (0.018)	NA	0.18 (0.1)	0.024 (0.021)	0.3 (0.1)	0.19 (0.021)	1.3 (0.11)	0.2 J (0.22)
Benzo(a)anthracene	130	340	--	0.025 (0.018)	NA	0.27 (0.1)	0.11 (0.021)	0.53 (0.1)	0.53 (0.021)	2.2 (0.11)	0.46 (0.22)
Benzo(a)pyrene	91	46	--	0.021 (0.018)	3.2 (0.71)	0.22 (0.1)	0.085 (0.021)	0.48 (0.1)	0.48 (0.021)	2.1 (0.11)	0.38 (0.22)
Benzo(b)fluoranthene	76	170	--	0.035 (0.018)	NA	0.26 (0.1)	0.13 (0.021)	0.63 (0.1)	0.61 (0.021)	3.1 (0.11)	0.8 (0.22)
Benzo(g,h,i)perylene	190000	180	--	0.023 (0.018)	NA	0.29 (0.1)	0.076 (0.021)	0.59 (0.1)	0.33 (0.021)	1.6 (0.11)	0.43 (0.22)
Chrysene	760	230	--	0.032 (0.018)	NA	0.57 (0.1)	0.14 (0.021)	0.6 (0.1)	0.48 (0.021)	2.3 (0.11)	0.54 (0.22)
Fluorene	130000	3800	--	0.006 J (0.018)	NA	0.25 (0.1)	0.008 J (0.021)	0.15 (0.1)	0.074 (0.021)	0.8 (0.11)	0.063 J (0.22)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.017 J (0.018)	NA	0.68 (0.1)	0.025 (0.021)	1 (0.1)	0.15 (0.021)	5.5 (0.11)	1.1 (0.22)
Phenanthrene	190000	10000	--	0.028 (0.018)	NA	0.83 (0.1)	0.078 (0.021)	0.9 (0.1)	0.74 (0.021)	3.5 (0.11)	0.72 (0.22)
Pyrene	96000	2200	--	0.039 (0.018)	NA	0.45 (0.1)	0.18 (0.021)	0.84 (0.1)	0.95 (0.021)	3.5 (0.11)	0.67 (0.22)
Metals											
Lead	1000	450	--	21.4 (6.74)	NA	117 (1.73)	13.9 (1.31)	351 (1.58)	77.5 (1.44)	119 (1.46)	268 (1.37)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-024 AOI7-BH-16-024-0-2-070716 0.0 - 2.0 7/7/2016	AOI7-BH-16-025 AOI7-BH-16-025-0-2-070116 0.0 - 2.0 7/1/2016	AOI7-BH-16-026 AOI7-BH-16-026-0-2-070116 0.0 - 2.0 7/1/2016	AOI7-BH-16-027 AOI7-BH-16-027-0-2-070716 0.0 - 2.0 7/7/2016	AOI7-BH-16-028 AOI7-BH-16-028-0-2-071216 0.0 - 2.0 7/12/2016	AOI7-BH-16-032 AOI7-BH-16-032-0-2-071216 0.0 - 2.0 7/12/2016	AOI7-BH-16-034 AOI7-BH-16-034-0-2-070816 0.0 - 2.0 7/8/2016	AOI7-BH-16-035 AOI7-BH-16-035-0-2-070816 0.0 - 2.0 7/8/2016
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.004)	0.82 J (4.1)	0.001 J (0.006)	ND (0.004)	0.01 (0.006)	ND (0.004)	0.39 J (0.41)	0.002 J (0.004)
Cumene	10000	2500	2500	ND (0.004)	3.4 J (4.1)	0.004 J (0.006)	ND (0.004)	ND (0.006)	ND (0.004)	0.25 J (0.41)	ND (0.004)
Ethyl Benzene	880	70	46	ND (0.004)	1.6 J (4.1)	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.004)	0.15 J (0.41)	ND (0.004)
Methyl tert-butyl ether	8500	2	1.4	ND (0.004)	ND (4.1)	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.004)	ND (0.41)	ND (0.004)
Toluene	10000	100	44	ND (0.004)	1.1 J (4.1)	ND (0.006)	ND (0.004)	0.015 (0.006)	ND (0.004)	0.67 (0.41)	0.002 J (0.004)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.004)	1 J (4.1)	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.004)	1 (0.41)	ND (0.004)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.004)	ND (4.1)	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.004)	ND (0.41)	ND (0.004)
Xylenes (total)	7900	1000	990	ND (0.004)	2 J (4.1)	0.002 J (0.006)	ND (0.004)	0.004 J (0.006)	ND (0.004)	1.5 (0.41)	ND (0.004)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.004 J (0.018)	2 (0.23)	0.053 J (0.19)	0.014 J (0.018)	1 (0.022)	0.01 J (0.018)	1 (0.12)	0.34 (0.019)
Benzo(a)anthracene	130	340	--	0.009 J (0.018)	1.8 (0.23)	0.26 (0.19)	0.025 (0.018)	2 (0.022)	0.03 (0.018)	1.8 (0.12)	0.72 (0.019)
Benzo(a)pyrene	91	46	--	0.014 J (0.018)	1.9 (0.23)	0.37 (0.19)	0.034 (0.018)	1.7 (0.022)	0.038 (0.018)	1.8 (0.12)	0.55 (0.019)
Benzo(b)fluoranthene	76	170	--	0.017 J (0.018)	2.3 (0.23)	0.57 (0.19)	0.053 (0.018)	2.2 (0.022)	0.069 (0.018)	2.5 (0.12)	0.69 (0.019)
Benzo(g,h,i)perylene	190000	180	--	0.016 J (0.018)	1.6 (0.23)	0.39 (0.19)	0.046 (0.018)	1.6 (0.022)	0.046 (0.018)	1.6 (0.12)	0.56 (0.019)
Chrysene	760	230	--	0.012 J (0.018)	2.1 (0.23)	0.4 (0.19)	0.034 (0.018)	2.2 (0.022)	0.049 (0.018)	2.8 (0.12)	0.73 (0.019)
Fluorene	130000	3800	--	ND (0.018)	1.8 (0.23)	ND (0.19)	0.004 J (0.018)	0.22 (0.022)	ND (0.018)	0.83 (0.12)	0.11 (0.019)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.009 J (0.018)	64 (0.46)	0.12 J (0.19)	0.04 (0.018)	3.3 (0.022)	0.009 J (0.018)	10 (0.12)	0.2 (0.019)
Phenanthrene	190000	10000	--	0.008 J (0.018)	5.1 (0.23)	0.23 (0.19)	0.029 (0.018)	2.6 (0.022)	0.031 (0.018)	3.1 (0.12)	1.4 (0.019)
Pyrene	96000	2200	--	0.016 J (0.018)	3.4 (0.23)	0.61 (0.19)	0.035 (0.018)	2.8 (0.022)	0.062 (0.018)	2.3 (0.12)	1.3 (0.019)
Metals											
Lead	1000	450	--	6.35 (1.23)	533 (1.38)	50.3 (1.35)	5.12 (1.14)	499 (1.79)	8.24 (1.32)	424 (1.96)	59.9 (1.57)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-036 AOI7-BH-16-036-0-2-063016 0.0 - 2.0 6/30/2016	AOI7-BH-16-037 AOI7-BH-16-037-0-2-062916 0.0 - 2.0 6/29/2016	AOI7-BH-16-038 AOI7-BH-16-038-0-2-063016 0.0 - 2.0 6/30/2016	AOI7-BH-16-039 AOI7-BH-16-039-0-2-062916 0.0 - 2.0 6/29/2016	AOI7-BH-16-040 AOI7-BH-16-040-0-2-062916 0.0 - 2.0 6/29/2016	AOI7-BH-16-041 AOI7-BH-16-041-0-2-070616 0.0 - 2.0 7/6/2016	AOI7-BH-16-042 AOI7-BH-16-042-0-2-070616 0.0 - 2.0 7/6/2016	AOI7-BH-16-043 AOI7-BH-16-043-0-2-062916 0.0 - 2.0 6/29/2016	
Volatile Organic Compounds												
Benzene	280	0.5	0.13	0.089 J (0.49)	ND (2.3)	ND (0.005)	0.004 J (0.004)	0.001 J (0.004)	0.002 J (0.005)	0.11 J (0.39)	0.002 J (0.005)	
Cumene	10000	2500	2500	ND (0.49)	ND (2.3)	ND (0.005)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.39)	ND (0.005)	
Ethyl Benzene	880	70	46	0.11 J (0.49)	ND (2.3)	ND (0.005)	ND (0.004)	ND (0.004)	ND (0.005)	0.12 J (0.39)	ND (0.005)	
Methyl tert-butyl ether	8500	2	1.4	ND (0.49)	ND (2.3)	ND (0.005)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.39)	ND (0.005)	
Toluene	10000	100	44	1.4 (0.49)	0.61 J (2.3)	0.001 J (0.005)	0.002 J (0.004)	0.001 J (0.004)	ND (0.005)	0.7 (0.39)	0.002 J (0.005)	
1,2,4-Trimethylbenzene	4700	300	300	0.14 J (0.49)	ND (2.3)	ND (0.005)	0.001 J (0.004)	ND (0.004)	ND (0.005)	0.082 J (0.39)	ND (0.005)	
1,3,5-Trimethylbenzene	4700	93	93	ND (0.49)	ND (2.3)	ND (0.005)	ND (0.004)	ND (0.004)	ND (0.005)	ND (0.39)	ND (0.005)	
Xylenes (total)	7900	1000	990	0.26 J (0.49)	ND (2.3)	ND (0.005)	0.002 J (0.004)	0.0008 J (0.004)	ND (0.005)	0.3 J (0.39)	ND (0.005)	
Semivolatile Organic Compounds												
Anthracene	190000	350	--	1.6 (0.27)	1.2 (0.27)	0.16 J (0.22)	0.009 J (0.018)	0.21 (0.037)	0.014 J (0.018)	2 (0.11)	1.4 (0.02)	
Benzo(a)anthracene	130	340	--	1.4 (0.27)	0.89 (0.27)	0.54 (0.22)	0.032 (0.018)	0.33 (0.037)	0.032 (0.018)	2.7 (0.11)	3.4 (0.02)	
Benzo(a)pyrene	91	46	--	1.5 (0.27)	0.91 (0.27)	0.69 (0.22)	0.027 (0.018)	0.25 (0.037)	0.041 (0.018)	3.3 (0.11)	2.4 (0.02)	
Benzo(b)fluoranthene	76	170	--	2.3 (0.27)	1.4 (0.27)	0.8 (0.22)	0.037 (0.018)	0.23 (0.037)	0.057 (0.018)	4.1 (0.11)	3.1 (0.02)	
Benzo(g,h,i)perylene	190000	180	--	1.4 (0.27)	0.99 (0.27)	0.72 (0.22)	0.043 (0.018)	0.28 (0.037)	0.035 (0.018)	2.7 (0.11)	1.7 (0.02)	
Chrysene	760	230	--	1.6 (0.27)	1.2 (0.27)	0.65 (0.22)	0.063 (0.018)	0.72 (0.037)	0.043 (0.018)	2.6 (0.11)	3.3 (0.02)	
Fluorene	130000	3800	--	1.1 (0.27)	0.77 (0.27)	0.059 J (0.22)	0.005 J (0.018)	0.27 (0.037)	0.005 J (0.018)	1.2 (0.11)	0.48 (0.02)	
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	66	25	25	21 (0.27)	10 (0.27)	1.4 (0.22)	0.02 (0.018)	0.087 (0.037)	0.039 (0.018)	8.7 (0.11)	2.5 (0.02)	
Phenanthrene	190000	10000	--	4.7 (0.27)	3.9 (0.27)	0.65 (0.22)	0.05 (0.018)	1.1 (0.037)	0.032 (0.018)	4.2 (0.11)	3.5 (0.02)	
Pyrene	96000	2200	--	2.2 (0.27)	1.5 (0.27)	0.64 (0.22)	0.04 (0.018)	0.78 (0.037)	0.057 (0.018)	3.6 (0.11)	4.5 (0.02)	
Metals												
Lead	1000	450	--	368 (2.09)	313 (1.88)	40.6 (1.61)	42.3 (6.06)	309 (5.59)	26.1 (1.38)	256 (1.52)	432 (1.57)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-044 AOI7-BH-16-044-0-2-071216 0.0 - 2.0 7/12/2016	AOI7-BH-16-045 AOI7-BH-16-045-0-2-070116 0.0 - 2.0 7/1/2016	AOI7-BH-16-046 AOI7-BH-16-046-0-2-070516 0.0 - 2.0 7/5/2016	AOI7-BH-16-047 AOI7-BH-16-047-0-2-070816 0.0 - 2.0 7/8/2016	AOI7-BH-16-2019 AOI7-BH-16-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-17-2019 AOI7-BH-17-2019(1.0-1.5) 1.0 - 1.5 3/26/2019	AOI7-BH-19-2019 AOI7-BH-19-2019(1.5-2.0) 1.5 - 2.0 3/26/2019	AOI7-BH-20-2019 AOI7-BH-20-2019(0.5-1.0) 0.5 - 1.0 3/26/2019
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.005)	ND (0.004)	0.37 (0.34)	0.12 J (0.38)	1.7 (0.28)	0.011 (0.006)	0.003 J (0.007)	0.15 J (0.23)
Cumene	10000	2500	2500	ND (0.005)	ND (0.004)	0.61 (0.34)	ND (0.38)	0.76 (0.28)	ND (0.006)	0.036 (0.007)	ND (0.23)
Ethyl Benzene	880	70	46	ND (0.005)	ND (0.004)	0.18 J (0.34)	0.1 J (0.38)	0.93 (0.28)	0.0005 J (0.006)	0.007 (0.007)	0.061 J (0.23)
Methyl tert-butyl ether	8500	2	1.4	ND (0.005)	ND (0.004)	ND (0.34)	ND (0.38)	ND (0.28)	ND (0.006)	ND (0.007)	ND (0.23)
Toluene	10000	100	44	ND (0.005)	ND (0.004)	0.5 (0.34)	0.89 (0.38)	4.3 (0.28)	0.004 J (0.006)	0.009 (0.007)	0.84 (0.23)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.005)	ND (0.004)	0.16 J (0.34)	0.13 J (0.38)	2.7 (0.28)	ND (0.006)	0.025 (0.007)	0.079 J (0.23)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.005)	ND (0.004)	ND (0.34)	ND (0.38)	1.1 (0.28)	ND (0.006)	0.014 (0.007)	0.045 J (0.23)
Xylenes (total)	7900	1000	990	ND (0.005)	ND (0.004)	0.88 (0.34)	0.21 J (0.38)	9.1 (0.28)	0.003 J (0.006)	0.057 (0.007)	0.68 (0.23)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.006 J (0.018)	ND (0.019)	3.5 (1)	1.9 (0.11)	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	0.024 (0.018)	0.016 J (0.019)	5 (1)	2.1 (0.11)	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	0.022 (0.018)	0.02 (0.019)	5.1 (1)	2.4 (0.11)	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	0.039 (0.018)	0.03 (0.019)	6.4 (1)	2.7 (0.11)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.024 (0.018)	0.024 (0.019)	3.4 (1)	2.1 (0.11)	NA	NA	NA	NA
Chrysene	760	230	--	0.03 (0.018)	0.02 (0.019)	5.9 (1)	2.7 (0.11)	NA	NA	NA	NA
Fluorene	130000	3800	--	ND (0.018)	ND (0.019)	5.4 (1)	1 (0.11)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.004 J (0.018)	0.007 J (0.019)	11 (1)	10 (0.11)	0.25 J (0.28)	0.02 (0.006)	ND (0.007)	ND (0.23)
Phenanthrene	190000	10000	--	0.018 J (0.018)	0.012 J (0.019)	5.7 (1)	3.7 (0.11)	NA	NA	NA	NA
Pyrene	96000	2200	--	0.038 (0.018)	0.024 (0.019)	9 (1)	3.9 (0.11)	NA	NA	NA	NA
Metals											
Lead	1000	450	--	ND (29)	4.14 (1.18)	509 (1.51)	238 (1.77)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-21-01 AOI7-BH-21-01(0-2) 0.0 - 2.0 11/30/2021	AOI7-BH-21-03 AOI7-BH-21-03(0-2) 0.0 - 2.0 11/30/2021	AOI7-BH-21-05 AOI7-BH-21-05(0-2) 0.0 - 2.0 11/30/2021	AOI7-BH-21-07 AOI7-BH-21-07(0-2) 0.0 - 2.0 11/30/2021	AOI7-BH-21-09 AOI7-BH-21-09 1.5 - 2.0 1/18/2022	AOI7-BH-21-10 AOI7-BH-21-10 1.5 - 2.0 1/18/2022	AOI7-BH-21-11 AOI7-BH-21-11 1.5 - 2.0 1/18/2022	AOI7-BH-21-12 AOI7-BH-21-12 1.5 - 2.0 1/18/2022
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.0056)	0.13 J,IQ (0.22)	ND,IQ (0.32)	0.14 J,IQ (0.29)	NA	NA	NA	NA
Cumene	10000	2500	2500	ND (0.0056)	0.29 IQ (0.22)	ND,IQ (0.32)	0.053 J,IQ (0.29)	NA	NA	NA	NA
Ethyl Benzene	880	70	46	ND (0.0056)	0.03 J,IQ (0.22)	ND,IQ (0.32)	0.097 J,IQ (0.29)	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	1.4	ND (0.0056)	ND,IQ (0.22)	ND,IQ (0.32)	ND,IQ (0.29)	NA	NA	NA	NA
Toluene	10000	100	44	ND (0.0056)	0.068 J,IQ (0.22)	ND,IQ (0.32)	0.04 J,IQ (0.29)	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0056)	0.05 J,IQ (0.22)	ND,IQ (0.32)	0.12 J,IQ (0.29)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	ND (0.0056)	ND,IQ (0.22)	ND,IQ (0.32)	0.044 J,IQ (0.29)	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	ND (0.011)	0.18 J,IQ (0.44)	ND,IQ (0.65)	0.56 J,IQ (0.58)	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.19 B,IQ (0.018)	0.47 B,IQ (0.018)	0.16 B,IQ (0.021)	0.083 J (0.19)	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	0.29 B,IQ (0.018)	0.26 B,IQ (0.018)	ND,IQ (0.021)	0.28 (0.19)	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	0.38 B,IQ (0.018)	0.33 B,IQ (0.018)	0.37 B,IQ (0.021)	0.31 (0.19)	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	0.3 B,IQ (0.018)	0.3 B,IQ (0.018)	0.18 B,IQ (0.021)	0.35 (0.19)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.39 B,IQ (0.018)	0.26 B,IQ (0.018)	0.62 B,IQ (0.021)	0.23 (0.19)	NA	NA	NA	NA
Chrysene	760	230	--	1 B,IQ (0.018)	0.49 B,IQ (0.018)	0.36 B,IQ (0.021)	0.35 (0.19)	NA	NA	NA	NA
Fluorene	130000	3800	--	0.2 B,IQ (0.018)	0.51 B,IQ (0.018)	ND,IQ (0.021)	0.041 J (0.19)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	0.18 B,IQ (0.018)	0.24 B,IQ (0.018)	0.28 B,IQ (0.021)	0.21 (0.19)	NA	NA	NA	NA
Naphthalene	66	25	25	0.055 IQ (0.018)	0.19 IQ (0.018)	0.084 IQ (0.021)	ND (0.19)	NA	NA	NA	NA
Phenanthrene	190000	10000	--	0.25 B,IQ (0.018)	0.49 B,IQ (0.018)	0.13 B,IQ (0.021)	0.41 (0.19)	NA	NA	NA	NA
Pyrene	96000	2200	--	0.91 B,IQ (0.018)	0.64 B,IQ (0.018)	0.19 B,IQ (0.021)	0.52 (0.19)	NA	NA	NA	NA
Metals											
Lead	1000	450	--	130 (1.4)	180 (1.4)	200 (1.4)	300 (1.2)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-21-14 AOI7-BH-21-14 1.5 - 2.0 1/18/2022	AST 283-CV-1 CV-1 0.0 - 0.5 6/28/2005	AST 283-SB-1 SB-1 1.0 - 1.5 6/28/2005	AST 283-SB-2 SB-2 1.0 - 1.5 6/28/2005	AST 283-SB-3 SB-3 1.0 - 1.5 6/28/2005	AST 283-SB-4 SB-4 1.0 - 1.5 6/28/2005	AST 283-SB-5 SB-5 1.0 - 1.5 6/28/2005	B90-1 B090A4 0.0 - 2.0 8/24/1992
Volatile Organic Compounds											
Benzene	280	0.5	0.13	NA	ND (0.027)	ND (0.03)	ND (0.5)	0.059 J (0.026)	0.033 J (0.029)	ND (0.027)	2.2
Cumene	10000	2500	2500	NA	ND (0.054)	ND (0.059)	ND (1)	ND (0.051)	ND (0.059)	ND (0.055)	NA
Ethyl Benzene	880	70	46	NA	ND (0.054)	ND (0.059)	ND (0.8)	ND (0.051)	0.064 J (0.059)	ND (0.055)	1.8
Methyl tert-butyl ether	8500	2	1.4	NA	ND (0.027)	ND (0.03)	ND (0.5)	ND (0.026)	ND (0.029)	ND (0.027)	NA
Toluene	10000	100	44	NA	ND (0.054)	0.073 J (0.059)	ND (0.7)	0.074 J (0.051)	0.2 J (0.059)	ND (0.055)	2.8
1,2,4-Trimethylbenzene	4700	300	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	NA	ND (0.054)	ND (0.059)	ND (0.8)	ND (0.051)	0.17 J (0.059)	ND (0.055)	11
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	ND (0.19)	ND (0.96)	0.00072 (0.039)	ND (0.19)	0.46 J (0.19)	ND (0.99)	NA
Benzo(a)anthracene	130	340	--	NA	ND (0.19)	ND (0.96)	0.003 (0.02)	0.26 J (0.19)	0.92 J (0.19)	ND (0.99)	NA
Benzo(a)pyrene	91	46	--	NA	ND (0.19)	ND (0.96)	0.0046 (0.098)	0.26 J (0.19)	0.9 J (0.19)	ND (0.99)	NA
Benzo(b)fluoranthene	76	170	--	NA	ND (0.19)	ND (0.96)	0.0024 (0.039)	0.32 J (0.19)	0.85 J (0.19)	ND (0.99)	NA
Benzo(g,h,i)perylene	190000	180	--	NA	0.26 J (0.19)	ND (0.96)	0.0037 (0.098)	ND (0.19)	0.62 J (0.19)	ND (0.99)	NA
Chrysene	760	230	--	NA	ND (0.19)	1.6 J (0.96)	0.0044 (0.078)	0.22 J (0.19)	1.1 (0.19)	ND (0.99)	NA
Fluorene	130000	3800	--	NA	ND (0.19)	ND (0.96)	0.0013 (0.49)	ND (0.19)	0.21 J (0.19)	ND (0.99)	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	ND (0.19)	ND (0.96)	0.0027 (0.078)	ND (0.19)	0.51 J (0.19)	ND (0.99)	NA
Naphthalene	66	25	25	NA	ND (0.054)	ND (0.059)	ND (1)	ND (0.051)	0.26 J (0.059)	ND (0.055)	0.33 J
Phenanthrene	190000	10000	--	NA	ND (0.19)	ND (0.96)	0.0035 (0.078)	0.37 J (0.19)	0.79 J (0.19)	ND (0.99)	NA
Pyrene	96000	2200	--	NA	ND (0.19)	ND (0.96)	0.01 (0.18)	0.48 J (0.19)	1 (0.19)	ND (0.99)	NA
Metals											
Lead	1000	450	--	NA	121 (0.879)	317 (0.9)	NA	97.9 (0.891)	113 (0.877)	81.1 (0.906)	93.8 BF

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B90-13 B090B2 0.0 - 2.0 8/25/1992	B90-13DL B090B2DL 0.0 - 2.0 8/25/1992	B90-16 B090C1 0.0 - 2.0 8/26/1992	B90-2 B090A1 0.0 - 2.0 8/24/1992	B90-4 B090A6 0.0 - 2.0 8/24/1992	B90-7 B090B7 0.0 - 2.0 8/26/1992	B90-8 B090A9 0.0 - 2.0 8/25/1992	B90-9 B090A8 0.0 - 2.0 8/24/1992
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.17)	NA	ND (1.2)	2 J	ND (0.89)	ND (1.1)	NA	0.01
Cumene	10000	2500	2500	NA	NA	NA	NA	NA	ND (1.5)	ND (1.5)	NA
Ethyl Benzene	880	70	46	1.2	NA	1.4	3 J	1.9	1.2	0.96 L	0.014
Methyl tert-butyl ether	8500	2	1.4	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	1.2	NA	2	6.2 J	3.9	1.8	0.8 L	0.0078
1,2,4-Trimethylbenzene	4700	300	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	8.2	NA	4.1	35 J	18	5.2	3.8 L	0.31
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	NA	NA	NA	NA	ND (0.39)	ND (0.37)	NA
Benzo(a)anthracene	130	340	--	NA	NA	NA	NA	NA	0.2 J	0.13 J	NA
Benzo(a)pyrene	91	46	--	NA	NA	NA	NA	NA	0.22 J	0.16 J	NA
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	--	NA	NA	NA	NA	NA	0.26	0.2 J	NA
Fluorene	130000	3800	--	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	0.26 J	0.24 J	NA
Naphthalene	66	25	25	13 J	12	2.9	0.31 J	3.2	1.4	2.6	0.32 J
Phenanthrene	190000	10000	--	NA	NA	NA	NA	NA	0.2 J	0.14 J	NA
Pyrene	96000	2200	--	NA	NA	NA	NA	NA	0.23 J	0.19 J	NA
Metals											
Lead	1000	450	--	80.3 BF	NA	310 BF	16 L	78.5 BF	148	233	236 BF

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B91-19 B091B5 0.0 - 2.0 8/28/1992	B91-3 B091A5 1.0 - 4.0 8/27/1992	B91-7 B091A3 0.0 - 2.0 8/26/1992	B91-8 B091A1 0.0 - 2.0 8/26/1992	B91-9 B091B2 0.0 - 2.0 8/28/1992	BH-10-05 BH-10-05_1.5-2.0 1.5 - 2.0 6/9/2010	BH-10-06 BH-10-06_1.2-1.7 1.2 - 1.7 6/9/2010	BH-10-07 BH-10-07_1.0-1.5 1.0 - 1.5 6/10/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	1.1	ND (1.1)	ND (1.1)	1.7	ND (0.068)	0.003 J (0.008)	0.0007 J (0.006)	ND (0.005)
Cumene	10000	2500	2500	NA	0.072	NA	ND (0.011)	NA	0.004 J (0.008)	ND (0.006)	ND (0.005)
Ethyl Benzene	880	70	46	1.6	2.5	1.3	1.2	0.17	0.002 J (0.008)	ND (0.006)	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	NA	NA	NA	NA	NA	ND (0.008)	ND (0.006)	ND (0.005)
Toluene	10000	100	44	1.2	ND (1.1)	ND (1.1)	1.1	ND (0.068)	0.005 J (0.008)	0.002 J (0.006)	ND (0.005)
1,2,4-Trimethylbenzene	4700	300	300	NA	NA	NA	NA	NA	0.007 J (0.008)	0.002 J (0.006)	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	NA	NA	NA	NA	NA	0.006 J (0.008)	ND (0.006)	ND (0.005)
Xylenes (total)	7900	1000	990	2.2	6.3	3.8	3.9	0.57	0.017 (0.008)	ND (0.006)	ND (0.005)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	ND (0.37)	NA	ND (0.38)	NA	0.54 (0.2)	0.87 (0.21)	ND (1.9)
Benzo(a)anthracene	130	340	--	NA	ND (0.37)	NA	ND (0.38)	NA	1.1 (0.2)	1.9 (0.21)	ND (1.9)
Benzo(a)pyrene	91	46	--	NA	0.12 J	NA	ND (0.38)	NA	1 (0.2)	1.9 (0.21)	ND (1.9)
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	NA	NA	1.3 (0.2)	2.5 (0.21)	ND (1.9)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	0.96 (0.2)	1.6 (0.21)	ND (1.9)
Chrysene	760	230	--	NA	0.13 J	NA	0.29	NA	1.1 (0.2)	2 (0.21)	ND (1.9)
Fluorene	130000	3800	--	NA	NA	NA	NA	NA	0.34 (0.2)	0.36 (0.21)	ND (1.9)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	ND (0.37)	NA	ND (0.38)	NA	NA	NA	NA
Naphthalene	66	25	25	2.3	0.2 J	1.4	ND (0.38)	ND (0.36)	1 (0.2)	3.3 (0.21)	ND (1.9)
Phenanthrene	190000	10000	--	NA	0.17 J	NA	ND (0.38)	NA	1.2 (0.2)	2.3 (0.21)	ND (1.9)
Pyrene	96000	2200	--	NA	0.15 J	NA	ND (0.38)	NA	1.7 (0.2)	2.8 (0.21)	ND (1.9)
Metals											
Lead	1000	450	--	1110	19.8	8.1 BF	306	117	411 (1.13)	266 (1.21)	305 (1.12)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BH-10-08 BH-10-08_1.5-2.0 1.5 - 2.0 6/10/2010	BH-10-10 BH-10-10_1.5-2.0 1.5 - 2.0 6/10/2010	BH-10-11 BH-10-11_1.5-2.0 1.5 - 2.0 6/10/2010	BH-10-12 BH-10-12_1.5-2.0 1.5 - 2.0 6/10/2010	BH-10-13 BH-10-13_1.5-2.0 1.5 - 2.0 6/9/2010	BH-10-14 BH-10-14_1.5-2.0 1.5 - 2.0 6/9/2010	BH-10-15 BH-10-15_1.4-1.9 1.4 - 1.9 6/9/2010	BH-10-16 BH-10-16_1.5-2.0 1.5 - 2.0 6/9/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.37 J (0.46)	0.16 J (0.47)	0.056 J (0.26)	0.004 J (0.007)	0.002 J (0.006)	0.26 J (0.4)	0.004 J (0.006)	0.85 J (0.88)
Cumene	10000	2500	2500	27 (0.46)	0.18 J (0.47)	ND (0.26)	ND (0.007)	ND (0.006)	ND (0.4)	ND (0.006)	9.1 (0.88)
Ethyl Benzene	880	70	46	0.15 J (0.46)	0.18 J (0.47)	0.09 J (0.26)	ND (0.007)	ND (0.006)	0.22 J (0.4)	ND (0.006)	ND (0.88)
Methyl tert-butyl ether	8500	2	1.4	ND (0.46)	ND (0.47)	ND (0.26)	ND (0.007)	ND (0.006)	ND (0.4)	ND (0.006)	ND (0.88)
Toluene	10000	100	44	0.12 J (0.46)	0.7 (0.47)	0.19 J (0.26)	0.007 J (0.007)	0.003 J (0.006)	0.95 (0.4)	0.002 J (0.006)	0.34 J (0.88)
1,2,4-Trimethylbenzene	4700	300	300	0.21 J (0.46)	0.89 (0.47)	0.43 (0.26)	0.006 J (0.007)	ND (0.006)	0.29 J (0.4)	ND (0.006)	0.24 J (0.88)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.46)	0.099 J (0.47)	0.085 J (0.26)	0.003 J (0.007)	ND (0.006)	0.12 J (0.4)	ND (0.006)	ND (0.88)
Xylenes (total)	7900	1000	990	0.69 (0.46)	0.57 (0.47)	0.3 (0.26)	0.007 (0.007)	ND (0.006)	1.1 (0.4)	ND (0.006)	0.69 J (0.88)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	2.5 (2.3)	1.2 (0.2)	1.3 (0.19)	1.7 (0.2)	1.6 (0.19)	1 (0.19)	0.57 (0.19)	1.9 J (2.2)
Benzo(a)anthracene	130	340	--	2.6 (2.3)	1.4 (0.2)	3.3 (0.19)	2.4 (0.2)	5 (1.9)	1.3 (0.19)	1.7 (0.19)	3.5 (2.2)
Benzo(a)pyrene	91	46	--	2.2 J (2.3)	1.4 (0.2)	2.7 (0.19)	2.1 (0.2)	4.2 (0.19)	1.2 (0.19)	1.4 (0.19)	2.8 (2.2)
Benzo(b)fluoranthene	76	170	--	2.1 J (2.3)	1.7 (0.2)	3.6 (0.19)	2.7 (0.2)	5.7 (1.9)	1.6 (0.19)	2 (0.19)	3.5 (2.2)
Benzo(g,h,i)perylene	190000	180	--	1.6 J (2.3)	1 (0.2)	1.4 (0.19)	1.5 (0.2)	2.9 (0.19)	1.1 (0.19)	0.97 (0.19)	2.2 J (2.2)
Chrysene	760	230	--	8.3 (2.3)	1.8 (0.2)	3.4 (0.19)	2.5 (0.2)	4.6 (1.9)	1.4 (0.19)	1.6 (0.19)	4.7 (2.2)
Fluorene	130000	3800	--	35 (2.3)	0.93 (0.2)	0.64 (0.19)	1.3 (0.2)	0.53 (0.19)	0.41 (0.19)	0.23 (0.19)	ND (2.2)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	ND (2.3)	3.3 (0.2)	1.5 (0.19)	3.8 (0.2)	1 (0.19)	4.9 (1.9)	0.31 (0.19)	ND (2.2)
Phenanthrene	190000	10000	--	20 (2.3)	2 (0.2)	2.9 (0.19)	3.8 (0.2)	4.5 (0.19)	2.6 (0.19)	2.4 (0.19)	11 (2.2)
Pyrene	96000	2200	--	8.9 (2.3)	3 (0.2)	6.6 (1.9)	4.5 (0.2)	7.3 (1.9)	1.8 (0.19)	2.7 (0.19)	8 (2.2)
Metals											
Lead	1000	450	--	444 (1.38)	725 (2.35)	184 (0.555)	414 (1.17)	320 (1.12)	531 (2.83)	280 (1.11)	616 (2.63)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BH-10-17 BH-10-17_1.5-2.0 1.5 - 2.0 6/9/2010	BH-10-18 BH-10-18_1.5-2.0 1.5 - 2.0 6/9/2010	BH-10-19 BH-10-19_0.5-1.0 0.5 - 1.0 6/9/2010	BH-10-20 BH-10-20_1.3-1.8 1.3 - 1.7 6/8/2010	BH-10-21 BH-10-21_1.0-1.5 1.0 - 1.5 6/8/2010	BH-10-22 BH-10-22_1.5-2.0 1.5 - 2.0 6/8/2010	BH-10-23 BH-10-23_1.0-1.5 1.0 - 1.5 6/7/2010	BH-10-24 BH-10-24_1.0-1.5 1.0 - 1.5 6/7/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.46 (0.29)	0.0008 J (0.007)	ND (0.005)	0.003 J (0.006)	ND (0.007)	0.005 J (0.007)	0.019 (0.008)	0.094 J (0.36)
Cumene	10000	2500	2500	0.3 (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.008)	0.28 J (0.36)
Ethyl Benzene	880	70	46	0.8 (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.008)	0.78 (0.36)
Methyl tert-butyl ether	8500	2	1.4	ND (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.008)	ND (0.36)
Toluene	10000	100	44	2.3 (0.29)	0.002 J (0.007)	ND (0.005)	0.001 J (0.006)	ND (0.007)	0.014 (0.007)	0.01 (0.008)	0.18 J (0.36)
1,2,4-Trimethylbenzene	4700	300	300	4.4 (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.008)	0.83 (0.36)
1,3,5-Trimethylbenzene	4700	93	93	2.4 (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.008)	0.34 J (0.36)
Xylenes (total)	7900	1000	990	7.5 (0.29)	ND (0.007)	ND (0.005)	ND (0.006)	0.001 J (0.007)	0.002 J (0.007)	0.003 J (0.008)	0.89 (0.36)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.57 (0.18)	1 (0.22)	0.67 (0.18)	0.88 (0.19)	2.9 (0.22)	0.79 (0.19)	0.052 J (0.18)	0.083 J (0.18)
Benzo(a)anthracene	130	340	--	0.58 (0.18)	1.4 (0.22)	2.1 (0.18)	1.8 (0.19)	4.4 (0.22)	1.1 (0.19)	0.2 (0.18)	0.27 (0.18)
Benzo(a)pyrene	91	46	--	0.51 (0.18)	1.5 (0.22)	2.3 (0.18)	1.7 (0.19)	3.8 (0.22)	1.1 (0.19)	0.24 (0.18)	0.31 (0.18)
Benzo(b)fluoranthene	76	170	--	0.54 (0.18)	1.7 (0.22)	3.1 (0.18)	2.3 (0.19)	4.5 (0.22)	1.6 (0.19)	0.32 (0.18)	0.43 (0.18)
Benzo(g,h,i)perylene	190000	180	--	0.32 (0.18)	1.2 (0.22)	2.5 (0.18)	1.4 (0.19)	2.9 (0.22)	1.2 (0.19)	0.14 J (0.18)	0.18 (0.18)
Chrysene	760	230	--	0.93 (0.18)	1.6 (0.22)	2.2 (0.18)	1.7 (0.19)	4.7 (0.22)	1.3 (0.19)	0.21 (0.18)	0.28 (0.18)
Fluorene	130000	3800	--	0.9 (0.18)	0.53 (0.22)	0.19 (0.18)	0.32 (0.19)	0.97 (0.22)	0.25 (0.19)	ND (0.18)	0.08 J (0.18)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	1.4 (0.18)	3.1 (0.22)	ND (0.18)	1.2 (0.19)	9.2 (2.2)	3.7 (0.19)	0.11 J (0.18)	1.4 (0.18)
Phenanthrene	190000	10000	--	2.3 (0.18)	2.4 (0.22)	2.5 (0.18)	2.6 (0.19)	4.2 (0.22)	2 (0.19)	0.17 J (0.18)	0.48 (0.18)
Pyrene	96000	2200	--	1.4 (0.18)	2.4 (0.22)	3.5 (0.18)	2.8 (0.19)	7.7 (2.2)	1.5 (0.19)	0.31 (0.18)	0.44 (0.18)
Metals											
Lead	1000	450	--	47.8 (0.218)	478 (1.27)	365 (1.07)	179 (0.549)	869 (2.55)	304 (1.13)	623 (2.19)	411 (1.06)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BH-10-25 BH-10-25_1.2-1.7 1.2 - 1.7 6/7/2010	BH-10-26 BH-10-26_1.5-2.0 1.5 - 2.0 6/7/2010	BH-10-27 BH-10-27_1.5-2.0 1.5 - 2.0 6/8/2010	BH-10-28 BH-10-28_1.5-2.0 1.5 - 2.0 6/7/2010	BH-10-29 BH-10-29_0.7-1.2 0.7 - 1.2 6/7/2010	BH-10-30 BH-10-30_1.5-2.0 1.5 - 2.0 6/7/2010	BH-10-31 BH-10-31_1.5-2.0 1.5 - 2.0 6/8/2010	BH-10-32 BH-10-32_0.5-1.0 0.5 - 1.0 6/8/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	31 (4.9)	0.003 J (0.006)	ND (4.6)	1.6 (0.37)	0.01 (0.005)	0.38 J (0.44)	0.47 J (0.49)	0.004 J (0.006)
Cumene	10000	2500	2500	ND (0.49)	ND (0.006)	6.5 (4.6)	2.1 (0.37)	ND (0.005)	ND (0.44)	0.17 J (0.49)	ND (0.006)
Ethyl Benzene	880	70	46	0.51 (0.49)	ND (0.006)	2.4 J (4.6)	27 (3.7)	ND (0.005)	0.29 J (0.44)	0.63 (0.49)	ND (0.006)
Methyl tert-butyl ether	8500	2	1.4	ND (0.49)	ND (0.006)	ND (4.6)	ND (0.37)	ND (0.005)	ND (0.44)	ND (0.49)	ND (0.006)
Toluene	10000	100	44	2.8 (0.49)	0.002 J (0.006)	1.7 J (4.6)	6.5 (0.37)	0.028 (0.005)	1.7 (0.44)	1.7 (0.49)	0.007 (0.006)
1,2,4-Trimethylbenzene	4700	300	300	0.2 J (0.49)	ND (0.006)	16 (4.6)	280 (37)	ND (0.005)	0.24 J (0.44)	1.1 (0.49)	0.002 J (0.006)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.49)	ND (0.006)	8 (4.6)	130 (3.7)	ND (0.005)	ND (0.44)	0.45 J (0.49)	ND (0.006)
Xylenes (total)	7900	1000	990	1.3 (0.49)	ND (0.006)	9 (4.6)	250 (3.7)	0.006 (0.005)	0.81 (0.44)	3.8 (0.49)	0.009 (0.006)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.45 (0.25)	3.6 (0.21)	2.6 (2.1)	ND (2.1)	ND (0.18)	1 (0.21)	0.82 (0.24)	0.13 J (0.2)
Benzo(a)anthracene	130	340	--	0.36 (0.25)	5.8 (1)	3.4 (2.1)	0.61 J (2.1)	0.21 (0.18)	1.3 (0.21)	0.61 (0.24)	0.18 J (0.2)
Benzo(a)pyrene	91	46	--	0.38 (0.25)	4.3 (0.21)	3.8 (2.1)	0.6 J (2.1)	0.23 (0.18)	1.5 (0.21)	0.61 (0.24)	0.21 (0.2)
Benzo(b)fluoranthene	76	170	--	0.77 (0.25)	6.1 (1)	5.5 (2.1)	1.3 J (2.1)	0.36 (0.18)	2.3 (0.21)	0.91 (0.24)	0.27 (0.2)
Benzo(g,h,i)perylene	190000	180	--	0.27 (0.25)	1.2 (0.21)	3.4 (2.1)	0.64 J (2.1)	ND (0.18)	0.74 (0.21)	0.66 (0.24)	0.25 (0.2)
Chrysene	760	230	--	0.44 (0.25)	5.4 (1)	4.4 (2.1)	0.68 J (2.1)	0.24 (0.18)	1.6 (0.21)	0.8 (0.24)	0.27 (0.2)
Fluorene	130000	3800	--	0.17 J (0.25)	1.1 (0.21)	1.7 J (2.1)	0.59 J (2.1)	ND (0.18)	0.5 (0.21)	0.32 (0.24)	ND (0.2)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	5.5 (0.25)	3.3 (0.21)	21 (2.1)	30 (2.1)	0.2 (0.18)	11 (1.1)	7.3 (2.4)	0.64 (0.2)
Phenanthrene	190000	10000	--	1.6 (0.25)	2.8 (0.21)	8.9 (2.1)	1.8 J (2.1)	0.21 (0.18)	2.9 (0.21)	2.5 (0.24)	0.3 (0.2)
Pyrene	96000	2200	--	0.54 (0.25)	8.2 (1)	6.5 (2.1)	1.3 J (2.1)	0.29 (0.18)	1.7 (0.21)	0.77 (0.24)	0.29 (0.2)
Metals											
Lead	1000	450	--	79.4 (0.289)	2040 (6.13)	393 (1.26)	155 (0.614)	395 (1.08)	250 (1.22)	610 (1.43)	298 (1.2)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BH-10-33 BH-10-33_1.5-2.0 1.5 - 2.0 6/8/2010	BH-10-34 BH-10-34_1.0-1.5 1.0 - 1.5 6/8/2010	BH-10-35 BH-10-35_1.3-1.7 1.3 - 1.7 6/8/2010	BNA-11 B088A5 0.0 - 2.0 8/17/1992	BNA-12 B089A2 0.0 - 2.0 8/14/1992	BNA-14 B089A1 0.0 - 2.0 8/14/1992	BNA-3 B087A9 0.0 - 2.0 8/21/1992	C-130 C-130_1-2 1.0 - 2.0 6/2/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.89)	0.0014	0.002	0.0057	ND (0.005)
Cumene	10000	2500	2500	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	ND (0.005)
Ethyl Benzene	880	70	46	ND (0.005)	ND (0.005)	ND (0.005)	1.3	ND (0.0011)	ND (0.0011)	0.0033	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	ND (0.005)
Toluene	10000	100	44	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.89)	0.0014	0.0027	0.0027	ND (0.005)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	ND (0.005)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	ND (0.005)
Xylenes (total)	7900	1000	990	ND (0.005)	ND (0.005)	ND (0.005)	2.5	ND (0.0011)	0.0014	0.028	ND (0.005)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	ND (0.18)	ND (0.18)	0.29 (0.18)	NA	NA	NA	NA	2.7 (1.9)
Benzo(a)anthracene	130	340	--	ND (0.18)	ND (0.18)	0.79 (0.18)	NA	NA	NA	NA	9.6 (1.9)
Benzo(a)pyrene	91	46	--	ND (0.18)	ND (0.18)	0.82 (0.18)	NA	NA	NA	NA	8.4 (1.9)
Benzo(b)fluoranthene	76	170	--	ND (0.18)	ND (0.18)	0.84 (0.18)	NA	NA	NA	NA	11 (1.9)
Benzo(g,h,i)perylene	190000	180	--	ND (0.18)	ND (0.18)	0.61 (0.18)	NA	NA	NA	NA	4.9 (1.9)
Chrysene	760	230	--	ND (0.18)	ND (0.18)	0.85 (0.18)	NA	NA	NA	NA	8.7 (1.9)
Fluorene	130000	3800	--	ND (0.18)	ND (0.18)	ND (0.18)	NA	NA	NA	NA	ND (1.9)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.35)	ND (0.37)	0.31 J	0.17 J	ND (1.9)
Phenanthrene	190000	10000	--	ND (0.18)	ND (0.18)	0.84 (0.18)	NA	NA	NA	NA	7.3 (1.9)
Pyrene	96000	2200	--	ND (0.18)	0.19 (0.18)	1.7 (0.18)	NA	NA	NA	NA	13 (1.9)
Metals											
Lead	1000	450	--	43.1 (0.214)	84.2 (0.216)	92.5 (0.215)	32.3	88.7	228	650	814 (4.67)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	C-131 C-131_1-2 1.0 - 2.0 6/3/2010	C-136 C-136_1-2 1.0 - 2.0 5/28/2010	C-137 C-137_1-2 1.0 - 2.0 5/27/2010	C-138 C-138_1-2 1.0 - 2.0 5/27/2010	C-139 C-139_1-2 1.0 - 2.0 6/2/2010	C-140 C-140_1-2 1.0 - 2.0 5/26/2010	C-142 C-142_1-2 1.0 - 2.0 6/3/2010	C-143 C-143_1-2 1.0 - 2.0 6/3/2010
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.006)	0.007 (0.005)	ND (0.005)	0.012 J (0.012)	ND (0.004)	ND (0.005)	0.1 J (0.31)	2 (0.33)
Cumene	10000	2500	2500	ND (0.006)	ND (0.005)	0.009 (0.005)	0.003 J (0.012)	ND (0.004)	ND (0.005)	0.078 J (0.31)	5.6 (0.33)
Ethyl Benzene	880	70	46	ND (0.006)	ND (0.005)	ND (0.005)	0.014 (0.012)	ND (0.004)	ND (0.005)	0.072 J (0.31)	0.15 J (0.33)
Methyl tert-butyl ether	8500	2	1.4	0.017 (0.006)	ND (0.005)	ND (0.005)	ND (0.012)	ND (0.004)	ND (0.005)	ND (0.31)	ND (0.33)
Toluene	10000	100	44	0.003 J (0.006)	0.008 (0.005)	ND (0.005)	0.054 (0.012)	ND (0.004)	ND (0.005)	0.63 (0.31)	0.22 J (0.33)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.006)	ND (0.005)	ND (0.005)	0.014 (0.012)	ND (0.004)	ND (0.005)	0.18 J (0.31)	0.25 J (0.33)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.006)	ND (0.005)	ND (0.005)	0.007 J (0.012)	ND (0.004)	ND (0.005)	0.09 J (0.31)	0.24 J (0.33)
Xylenes (total)	7900	1000	990	ND (0.006)	ND (0.005)	ND (0.005)	0.072 (0.012)	ND (0.004)	ND (0.005)	0.22 J (0.31)	0.57 (0.33)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	0.94 J (1.1)	ND (0.18)	1.9 (0.21)	0.094 J (0.26)	ND (0.18)	0.38 (0.19)	2 (0.94)	0.17 J (0.18)
Benzo(a)anthracene	130	340	--	1.3 (1.1)	0.37 (0.18)	2.3 (0.21)	0.24 J (0.26)	ND (0.18)	1.2 (0.19)	3.1 (0.94)	0.42 (0.18)
Benzo(a)pyrene	91	46	--	1.5 (1.1)	0.38 (0.18)	1.9 (0.21)	0.2 J (0.26)	ND (0.18)	1.2 (0.19)	3.4 (0.94)	0.52 (0.18)
Benzo(b)fluoranthene	76	170	--	2.2 (1.1)	0.55 (0.18)	2.2 (0.21)	0.32 (0.26)	ND (0.18)	1.4 (0.19)	4.8 (0.94)	0.62 (0.18)
Benzo(g,h,i)perylene	190000	180	--	0.64 J (1.1)	0.39 (0.18)	1.3 (0.21)	0.15 J (0.26)	ND (0.18)	1 (0.19)	1.3 (0.94)	0.43 (0.18)
Chrysene	760	230	--	1.6 (1.1)	0.41 (0.18)	2.3 (0.21)	0.3 (0.26)	ND (0.18)	1.3 (0.19)	2.9 (0.94)	0.6 (0.18)
Fluorene	130000	3800	--	0.35 J (1.1)	ND (0.18)	1.8 (0.21)	ND (0.26)	ND (0.18)	ND (0.19)	1.6 (0.94)	0.062 J (0.18)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	6.5 (1.1)	0.55 (0.18)	5.4 (2.1)	0.11 J (0.26)	ND (0.18)	0.47 (0.19)	2 (0.94)	0.27 (0.18)
Phenanthrene	190000	10000	--	2.9 (1.1)	0.36 (0.18)	4.4 (2.1)	0.24 J (0.26)	ND (0.18)	0.99 (0.19)	7.1 (0.94)	0.49 (0.18)
Pyrene	96000	2200	--	1.9 (1.1)	0.44 (0.18)	ND (0.21)	0.36 (0.26)	0.25 (0.18)	1.9 (0.19)	5.9 (0.94)	0.93 (0.18)
Metals											
Lead	1000	450	--	396 (1.29)	218 (1.09)	251 (0.617)	103 (0.308)	98.7 (0.212)	98.6 (0.557)	1370 (4.44)	164 (1.03)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	C-165 C-165_1.5-2' 1.5 - 2.0 12/5/2012	C-168 C-168_1.5-2' 1.5 - 2.0 12/5/2012	C-169 C-169_1.5-2' 1.5 - 2.0 12/5/2012	C-170 AOI7-C-170-0-2-070716 0.0 - 2.0 7/7/2016	C-171 AOI7-C-171-0-2-070516 0.0 - 2.0 7/5/2016	C-172 AOI7-C-172-0-2-070616 0.0 - 2.0 7/6/2016	GP-270-S-11 S-11 (1.5-2.0) 1.5 - 2.0 10/6/2009	GP-270-S-13 S-13 (1.0-1.5) 1.0 - 1.5 10/6/2009
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.25)	ND (0.0013)	ND (0.0016)	0.09 J (0.38)	0.15 J (0.33)	ND (0.006)	0.12 J (0.032)	ND (0.058)
Cumene	10000	2500	2500	0.918 J (1.2)	ND (0.0064)	ND (0.008)	0.91 (0.38)	ND (0.33)	ND (0.006)	ND (0.064)	ND (0.12)
Ethyl Benzene	880	70	46	ND (0.25)	ND (0.0013)	ND (0.0016)	0.16 J (0.38)	0.09 J (0.33)	ND (0.006)	ND (0.064)	ND (0.12)
Methyl tert-butyl ether	8500	2	1.4	ND (0.25)	ND (0.0013)	ND (0.0016)	ND (0.38)	ND (0.33)	ND (0.006)	NA	NA
Toluene	10000	100	44	0.347 (0.25)	ND (0.0013)	0.00052 J (0.0016)	0.41 (0.38)	0.39 (0.33)	ND (0.006)	0.4 (0.064)	0.4 J (0.12)
1,2,4-Trimethylbenzene	4700	300	300	0.147 J (1.2)	ND (0.0064)	ND (0.008)	1.5 (0.38)	0.11 J (0.33)	ND (0.006)	ND (0.064)	ND (0.12)
1,3,5-Trimethylbenzene	4700	93	93	ND (1.2)	ND (0.0064)	ND (0.008)	0.27 J (0.38)	ND (0.33)	ND (0.006)	ND (0.064)	ND (0.12)
Xylenes (total)	7900	1000	990	0.445 (0.25)	ND (0.0013)	ND (0.0016)	0.83 (0.38)	0.49 (0.33)	ND (0.006)	0.083 J (0.064)	0.14 J (0.12)
Semivolatile Organic Compounds											
Anthracene	190000	350	--	2.64 (0.26)	0.206 (0.038)	0.0691 (0.045)	2.2 (2.1)	2.9 (1.1)	0.91 (0.1)	0.89 J (0.39)	1.1 J (0.52)
Benzo(a)anthracene	130	340	--	0.79 (0.26)	0.24 (0.038)	0.0673 (0.045)	2.1 J (2.1)	4.8 (1.1)	2 (0.1)	1.6 J (0.39)	1.8 J (0.52)
Benzo(a)pyrene	91	46	--	0.576 (0.26)	0.223 (0.038)	0.0624 (0.045)	2.1 J (2.1)	3.9 (1.1)	2 (0.1)	1.6 J (0.39)	2.4 J (0.52)
Benzo(b)fluoranthene	76	170	--	0.445 (0.26)	0.206 (0.038)	0.067 (0.045)	2.7 (2.1)	7 (1.1)	2.6 (0.1)	2 (0.39)	2.8 (0.52)
Benzo(g,h,i)perylene	190000	180	--	0.912 (0.26)	0.612 (0.038)	0.0751 (0.045)	2.4 (2.1)	2.7 (1.1)	1.5 (0.1)	1.1 J (0.39)	1.9 J (0.52)
Chrysene	760	230	--	1.05 (0.26)	0.276 (0.038)	0.0565 (0.045)	3.6 (2.1)	5.1 (1.1)	1.9 (0.1)	1.9 J (0.39)	1.9 J (0.52)
Fluorene	130000	3800	--	7.93 (0.26)	ND (0.038)	ND (0.045)	ND (2.1)	1.8 (1.1)	0.47 (0.1)	0.65 J (0.39)	ND (0.52)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	0.96 J (0.39)	1.6 J (0.52)
Naphthalene	66	25	25	ND (0.26)	0.0225 J (0.038)	ND (0.045)	6.2 (2.1)	5 (1.1)	3.1 (0.1)	0.29 J (0.064)	0.67 (0.12)
Phenanthrene	190000	10000	--	10.6 (0.26)	0.165 (0.038)	0.0423 J (0.045)	6.3 (2.1)	6.6 (1.1)	2.7 (0.1)	1.7 J (0.39)	3 (0.52)
Pyrene	96000	2200	--	2.05 (0.26)	0.284 (0.038)	0.0751 (0.045)	5.4 (2.1)	8.5 (1.1)	2.8 (0.1)	3.5 (0.39)	2 J (0.52)
Metals											
Lead	1000	450	--	286 (2.9)	273 (2.6)	127 (3)	793 (1.72)	324 (1.9)	198 (1.5)	99.9 (0.685)	330 (0.891)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-270-S-14 S-14 (1.0-1.5) 1.0 - 1.5 10/6/2009	GP-270-S-15 S-15 (1.5-2.0) 1.5 - 2.0 10/6/2009	GP-270-S-6 S-6 (1.5-2.0) 1.5 - 2.0 9/29/2009	GP-271-GP-1 GP-1(0-0.5) 0.0 - 0.5 6/4/2002	GP-271-GP-2 GP-2 (0.5-1.0) 0.5 - 1.0 6/4/2002	GP-271-GP-3 GP-3 (1.5-2.0) 1.5 - 2.0 6/4/2002	GP-271-GP-4 GP-4 (1.5-2.0) 1.5 - 2.0 6/4/2002	GP-271-GP-5 GP-5 (1.5-2.0) 1.5 - 2.0 6/4/2002
Volatile Organic Compounds											
Benzene	280	0.5	0.13	ND (0.057)	0.11 J (0.055)	ND (0.053)	ND (0.27)	ND (0.22)	0.15 J (0.37)	2.2 (0.47)	1.2 (0.54)
Cumene	10000	2500	2500	ND (0.11)	ND (0.11)	ND (0.11)	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	46	ND (0.11)	0.19 J (0.11)	ND (0.11)	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	1.4	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.28 J (0.11)	0.63 (0.11)	0.36 J (0.11)	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	300	300	0.13 J (0.11)	0.16 J (0.11)	ND (0.11)	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	ND (0.11)	ND (0.11)	ND (0.11)	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	0.19 J (0.11)	0.64 (0.11)	ND (0.11)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	350	--	1.1 J (0.5)	4.4 (0.52)	7.5 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Benzo(a)anthracene	130	340	--	1.9 J (0.5)	5.8 (0.52)	8.8 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Benzo(a)pyrene	91	46	--	2.5 J (0.5)	6.5 (0.52)	7.1 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Benzo(b)fluoranthene	76	170	--	3 (0.5)	7.5 (0.52)	8.6 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Benzo(g,h,i)perylene	190000	180	--	2.3 J (0.5)	4.6 (0.52)	3.7 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Chrysene	760	230	--	1.9 J (0.5)	7.3 (0.52)	11 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	ND (16)
Fluorene	130000	3800	--	ND (0.5)	3.2 (0.52)	7.3 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	0.75 (0.65)	120 (16)
Indeno(1,2,3-cd)pyrene	76	18000	--	1.9 J (0.5)	3.6 (0.52)	3.1 (0.6)	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.8 (0.11)	0.43 J (0.11)	0.41 J (0.11)	ND (0.27)	ND (0.22)	1.2 (0.37)	1.5 (0.47)	ND (0.54)
Phenanthrene	190000	10000	--	2.5 J (0.5)	4.9 (0.52)	17 (0.6)	ND (0.37)	ND (0.37)	0.29 J (0.53)	0.84 (0.65)	110 (16)
Pyrene	96000	2200	--	2.3 J (0.5)	15 (0.52)	23 (0.6)	ND (0.37)	ND (0.37)	ND (0.53)	ND (0.65)	11 J (16)
Metals											
Lead	1000	450	--	366 (0.871)	386 (0.886)	450 (1.07)	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-271-GP-6 GP-6 (0-0.5) 0.0 - 0.5 6/4/2002	GP-275-LINE1 GP-275-LINE1 0.0 - 0.5 5/25/2007	GP-275-LINE2 GP-275-LINE2 0.0 - 0.5 5/25/2007	GP-275-LINE3 GP-275-LINE3 0.0 - 0.5 5/25/2007	GP-275-LINE4 GP-275-LINE4 0.0 - 0.5 5/25/2007	GP-277-LINE1 GP-277-LINE1 0.0 - 0.5 5/25/2007	GP-277-LINE2 GP-277-LINE2 0.0 - 0.5 5/25/2007	GP-277-LINE3 GP-277-LINE3 0.0 - 0.5 5/25/2007
Volatile Organic Compounds											
Benzene	280	0.5	0.13	0.076 J (0.27)	ND,D (0.24)	ND,D (0.21)	ND,D (0.23)	ND,D (0.16)	2.3 D (0.23)	ND,D (0.14)	ND,D (0.16)
Cumene	10000	2500	2500	NA	ND,D (0.24)	ND,D (0.21)	ND,D (0.23)	ND,D (0.16)	0.12 J,D (0.23)	ND,D (0.14)	ND,D (0.16)
Ethyl Benzene	880	70	46	NA	ND,D (0.24)	ND,D (0.21)	ND,D (0.23)	ND,D (0.16)	0.68 D (0.23)	ND,D (0.14)	ND,D (0.16)
Methyl tert-butyl ether	8500	2	1.4	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	NA	ND,D (0.24)	ND,D (0.21)	ND,D (0.23)	ND,D (0.16)	1.7 D (0.23)	0.098 J,D (0.14)	ND,D (0.16)
1,2,4-Trimethylbenzene	4700	300	300	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	350	--	ND (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	ND (0.36)	ND (0.36)	ND (0.38)
Benzo(a)anthracene	130	340	--	0.25 J (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	0.73 D (0.72)	ND (0.36)	ND (0.38)
Benzo(a)pyrene	91	46	--	0.33 J (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	0.76 D (0.72)	ND (0.36)	ND (0.38)
Benzo(b)fluoranthene	76	170	--	0.44 (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	0.83 D (0.72)	ND (0.36)	0.26 J (0.38)
Benzo(g,h,i)perylene	190000	180	--	ND (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	0.63 J,D (0.72)	ND (0.36)	ND (0.38)
Chrysene	760	230	--	0.41 J (0.44)	0.23 J (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	1.7 D (0.72)	ND (0.36)	ND (0.38)
Fluorene	130000	3800	--	ND (0.44)	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	ND,D (0.72)	ND (0.36)	ND (0.38)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	ND (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	0.46 J,D (0.72)	ND (0.36)	ND (0.38)
Naphthalene	66	25	25	0.19 J (0.27)	0.23 J,D (0.24)	ND,D (0.21)	ND,D (0.23)	ND,D (0.16)	0.58 D (0.23)	0.13 J,D (0.14)	0.13 J,D (0.16)
Phenanthrene	190000	10000	--	0.39 J (0.44)	0.56 (0.34)	0.21 J (0.36)	ND (0.37)	ND (0.35)	0.86 D (0.72)	ND (0.36)	ND (0.38)
Pyrene	96000	2200	--	0.44 (0.44)	0.33 J (0.34)	ND (0.36)	ND (0.37)	ND (0.35)	2.5 D (0.72)	ND (0.36)	0.3 J (0.38)
Metals											
Lead	1000	450	--	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H2

Summary of Historical Surface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP280-08 GP280-08-20160829-1.0 1 8/29/2016	GP280-09 GP280-09-20160829-1.0 1 8/29/2016	GP284-01 GP284-01 0.5 - 1.0 2/24/2016	GP284-02 GP284-02 0.5 - 1.0 2/24/2016	GP284-03 GP284-03 0.5 - 1.0 2/24/2016	GP284-04 GP284-04 0.5 - 1.0 2/24/2016
Volatile Organic Compounds									
Benzene	280	0.5	0.13	ND (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	ND (0.005)
Cumene	10000	2500	2500	0.004 J (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	ND (0.005)
Ethyl Benzene	880	70	46	0.004 J (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	ND (0.005)
Methyl tert-butyl ether	8500	2	1.4	ND (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	ND (0.005)
Toluene	10000	100	44	0.003 J (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	ND (0.005)
1,2,4-Trimethylbenzene	4700	300	300	0.16 (0.008)	0.22 J (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	0.006 (0.005)
1,3,5-Trimethylbenzene	4700	93	93	0.026 (0.008)	ND (0.64)	ND (0.005)	ND (0.006)	ND (0.005)	0.013 (0.005)
Xylenes (total)	7900	1000	990	0.011 (0.008)	ND (0.64)	0.002 J (0.005)	0.022 (0.006)	ND (0.005)	0.004 J (0.004)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	2.7 (1.1)	1.4 (0.43)	0.31 J (0.54)	0.35 (0.11)	0.11 (0.11)	0.11 J (0.53)
Benzo(a)anthracene	130	340	--	1.9 (1.1)	0.99 (0.43)	0.42 J (0.54)	0.53 (0.11)	0.2 (0.11)	0.32 J (0.53)
Benzo(a)pyrene	91	46	--	1.2 (1.1)	0.58 (0.43)	0.44 J (0.54)	0.46 (0.11)	0.19 (0.11)	0.28 J (0.53)
Benzo(b)fluoranthene	76	170	--	2.8 (1.1)	0.88 (0.43)	0.51 J (0.54)	0.59 (0.11)	0.25 (0.11)	0.42 J (0.53)
Benzo(g,h,i)perylene	190000	180	--	1.4 (1.1)	0.67 (0.43)	0.47 J (0.54)	0.42 (0.11)	0.25 (0.11)	ND (0.53)
Chrysene	760	230	--	8 (1.1)	4 (0.43)	1.9 (0.54)	1.8 (0.11)	0.32 (0.11)	1.5 (0.53)
Fluorene	130000	3800	--	2 (1.1)	2.7 (0.43)	0.34 J (0.54)	0.41 (0.11)	0.069 J (0.11)	0.16 J (0.53)
Indeno(1,2,3-cd)pyrene	76	18000	--	0.88 J (1.1)	0.45 (0.43)	0.39 J (0.54)	0.31 (0.11)	0.14 (0.11)	ND (0.53)
Naphthalene	66	25	25	0.005 J (0.008)	0.5 J (0.64)	0.71 (0.54)	1.8 (0.11)	0.54 (0.11)	0.1 J (0.53)
Phenanthrene	190000	10000	--	7.4 (1.1)	8.5 (0.43)	0.88 (0.54)	0.95 (0.11)	0.37 (0.11)	0.22 J (0.53)
Pyrene	96000	2200	--	5.6 (1.1)	2.3 (0.43)	1.4 (0.54)	0.98 (0.11)	0.28 (0.11)	1 (0.53)
Metals									
Lead	1000	450	--	98.5 (1.68)	50.3 (1.87)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L, and S are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	1231-01 1231-01_3-4_20220830 3.0 - 4.0 8/30/2022	1231-02 1231-02_2-3_20220830 2.0 - 3.0 8/30/2022	1231-04 1231-04_3-4_20220830 3.0 - 4.0 8/30/2022	137-01 137-01_2-3_20220811 2.0 - 3.0 8/11/2022	137-02 137-02_3-4_20220811 3.0 - 4.0 8/11/2022	AO17 BH-12-100 BH-12-100_3.0' 2.5 - 3.0 11/27/2012
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.00046)	ND (0.00061)	ND (0.00051)	ND (0.00068)	ND (0.00076)	ND (0.00091)
Cumene	10000	2500	2500	ND (0.0018)	ND (0.0024)	ND (0.002)	0.118 (0.0027)	0.0104 (0.0031)	ND (0.0046)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.00092)	ND (0.0012)	ND (0.001)	ND (0.0014)	ND (0.0015)	ND (0.00091)
Ethyl Benzene	1000	70	46	ND (0.00092)	0.00076 J (0.0012)	0.00057 J (0.001)	ND (0.0014)	ND (0.0015)	ND (0.00091)
Methyl tert-butyl ether	9800	2	1.4	ND (0.00092)	ND (0.0012)	ND (0.001)	0.001 J (0.0014)	ND (0.0015)	ND (0.00091)
Toluene	10000	100	44	ND (0.00092)	0.0057 (0.0012)	0.0021 (0.001)	ND (0.0014)	ND (0.0015)	ND (0.00091)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.0018)	0.00091 J (0.0024)	0.00068 J (0.002)	0.0033 (0.0027)	0.0061 (0.0031)	ND (0.0046)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.0018)	ND (0.0024)	0.00061 J (0.002)	ND (0.0027)	0.01 (0.0031)	ND (0.0046)
Xylenes (total)	9100	1000	990	ND (0.00092)	0.0031 (0.0012)	0.0025 (0.001)	0.0119 (0.0014)	0.0034 (0.0015)	ND (0.00091)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	ND (0.035)	8.19 (0.19)	0.11 (0.038)	0.176 (0.038)	0.52 (0.19)	0.159 (0.033)
Benzo(a)anthracene	190000	340	--	0.012 J (0.035)	21.6 (0.93)	0.348 (0.038)	0.511 (0.038)	0.752 (0.19)	0.818 (0.033)
Benzo(a)pyrene	190000	46	--	ND (0.035)	20.9 (0.93)	0.266 (0.038)	0.644 (0.038)	0.639 (0.38)	0.796 (0.033)
Benzo(b)fluoranthene	190000	170	--	ND (0.035)	25.2 (0.93)	0.346 (0.038)	0.746 (0.038)	0.666 (0.38)	0.821 (0.033)
Benzo(g,h,i)perylene	190000	180	--	ND (0.035)	8.98 (0.19)	0.146 (0.038)	0.175 (0.038)	0.597 (0.38)	0.489 (0.033)
Chrysene	190000	230	--	ND (0.035)	20 (0.93)	0.344 (0.038)	0.619 (0.038)	1.34 (0.19)	0.768 (0.033)
Fluorene	190000	3800	--	ND (0.035)	3.96 (0.19)	0.0199 J (0.038)	0.0503 (0.038)	0.465 (0.19)	0.0385 (0.033)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	ND (0.0046)	0.162 (0.0061)	0.0043 J (0.0051)	0.0036 J (0.0068)	ND (0.0076)	ND (0.0046)
Phenanthrene	190000	10000	--	ND (0.035)	30.3 (0.93)	0.374 (0.038)	0.47 (0.038)	2.25 (0.19)	0.469 (0.033)
Pyrene	190000	2200	--	0.0158 J (0.035)	37.3 (0.93)	0.986 (0.038)	1.21 (0.038)	2.23 (0.19)	0.835 (0.033)
Metals									
Lead	190000	450	--	3.3 (2.3)	390 (12)	46 (22)	426 (2.3)	416 (11)	135 (2.3)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-43 BH-12-43_2.5' 2.0 - 2.5 11/28/2012	AOI7 BH-12-45 BH-12-45_3.5' 3.0 - 3.5 11/29/2012	AOI7 BH-12-48 BH-12-48_3' 2.5 - 3.0 11/30/2012	AOI7 BH-12-49 BH-12-49_2.5' 2.0 - 2.5 11/30/2012	AOI7 BH-12-53 BH-12-53_2.5' 2.0 - 2.5 11/30/2012	AOI7 BH-12-54 BH-12-54_3' 2.5 - 3.0 11/30/2012
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.004)	ND (0.0013)	ND (0.0012)	ND (0.00083)	ND (0.066)	0.34 (0.066)
Cumene	10000	2500	2500	ND (0.004)	ND (0.0063)	ND (0.0062)	ND (0.0042)	ND (0.33)	2.24 (0.33)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.004)	ND (0.0013)	ND (0.0012)	ND (0.00083)	ND (0.066)	ND (0.066)
Ethyl Benzene	1000	70	46	ND (0.004)	ND (0.0013)	ND (0.0012)	ND (0.00083)	0.164 (0.066)	5.98 (0.066)
Methyl tert-butyl ether	9800	2	1.4	ND (0.004)	ND (0.0013)	ND (0.0012)	ND (0.00083)	ND (0.066)	ND (0.066)
Toluene	10000	100	44	ND (0.004)	ND (0.0013)	ND (0.0012)	ND (0.00083)	0.148 (0.066)	0.569 (0.066)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.004)	ND (0.0063)	ND (0.0062)	ND (0.0042)	1.86 (0.33)	34.9 (3.3)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.004)	ND (0.0063)	ND (0.0062)	ND (0.0042)	0.474 (0.33)	9.72 (0.33)
Xylenes (total)	9100	1000	990	ND (0.004)	0.0021 (0.0013)	ND (0.0012)	ND (0.00083)	0.942 (0.066)	17.2 (0.066)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	0.59 (0.19)	1.04 (0.04)	0.82 (0.084)	0.0698 (0.036)	0.409 (0.08)	0.932 (0.038)
Benzo(a)anthracene	190000	340	--	1.8 (0.19)	2.16 (0.04)	0.8 (0.084)	0.26 (0.036)	0.914 (0.08)	1.35 (0.038)
Benzo(a)pyrene	190000	46	--	2 (0.19)	2.89 (0.04)	1.02 (0.084)	0.278 (0.036)	0.921 (0.08)	1.04 (0.038)
Benzo(b)fluoranthene	190000	170	--	2.6 (0.19)	2.82 (0.04)	0.717 (0.084)	0.263 (0.036)	0.895 (0.08)	1.32 (0.038)
Benzo(g,h,i)perylene	190000	180	--	1.4 (0.19)	1.93 (0.04)	1.14 (0.084)	0.226 (0.036)	0.839 (0.08)	0.709 (0.038)
Chrysene	190000	230	--	2 (0.19)	2.35 (0.04)	1.6 (0.084)	0.305 (0.036)	1.31 (0.08)	1.43 (0.038)
Fluorene	190000	3800	--	0.26 (0.19)	1.14 (0.04)	0.217 (0.084)	ND (0.036)	0.297 (0.08)	0.89 (0.038)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	0.54 (0.19)	ND (0.0063)	ND (0.0062)	ND (0.0042)	0.989 (0.33)	4.58 (0.33)
Phenanthrene	190000	10000	--	1.7 (0.19)	1.42 (0.04)	1.25 (0.084)	0.201 (0.036)	1.25 (0.08)	2.73 (0.038)
Pyrene	190000	2200	--	3 (0.19)	3.39 (0.04)	2.1 (0.084)	0.41 (0.036)	1.81 (0.08)	3.35 (0.038)
Metals									
Lead	190000	450	--	119 (0.552)	758 (2.7)	1530 (2.9)	107 (4.3)	510 (2.3)	190 (4.9)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-55 BH-12-55_2.5' 2.0 - 2.5 11/30/2012	AOI7 BH-12-58 BH-12-58_3' 2.5 - 3.0 11/28/2012	AOI7 BH-12-58 BH-12-58_4' 3.5 - 4.0 11/28/2012	AOI7 BH-12-62 BH-12-62_3' 2.5 - 3.0 11/29/2012	AOI7 BH-12-64 BH-12-64_2.5' 2.0 - 2.5 11/29/2012	AOI7 BH-12-64 BH-12-64_3' 2.5 - 3.0 11/29/2012
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.0011)	ND (0.005)	ND (0.36)	ND (0.00087)	0.135 (0.07)	ND (0.00099)
Cumene	10000	2500	2500	ND (0.0053)	ND (0.005)	ND (0.36)	ND (0.0043)	ND (0.35)	ND (0.0049)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.0011)	ND (0.005)	ND (0.36)	ND (0.00087)	ND (0.07)	ND (0.00099)
Ethyl Benzene	1000	70	46	ND (0.0011)	ND (0.005)	ND (0.36)	ND (0.00087)	0.143 (0.07)	ND (0.00099)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0011)	ND (0.005)	ND (0.36)	ND (0.00087)	ND (0.07)	ND (0.00099)
Toluene	10000	100	44	ND (0.0011)	ND (0.005)	0.21 J (0.36)	ND (0.00087)	0.421 (0.07)	ND (0.00099)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.0053)	ND (0.005)	ND (0.36)	ND (0.0043)	ND (0.35)	ND (0.0049)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.0053)	ND (0.005)	ND (0.36)	ND (0.0043)	ND (0.35)	ND (0.0049)
Xylenes (total)	9100	1000	990	ND (0.0011)	ND (0.005)	ND (0.36)	ND (0.00087)	0.3 (0.07)	ND (0.00099)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	0.265 (0.073)	0.13 (0.02)	3.3 (0.12)	0.0828 (0.029)	1.88 (0.072)	0.382 (0.034)
Benzo(a)anthracene	190000	340	--	0.612 (0.073)	0.27 (0.02)	5.2 (0.12)	0.276 (0.029)	2.13 (0.072)	0.969 (0.034)
Benzo(a)pyrene	190000	46	--	0.599 (0.073)	0.3 (0.02)	5.3 (0.12)	0.329 (0.029)	2.26 (0.072)	0.916 (0.034)
Benzo(b)fluoranthene	190000	170	--	0.701 (0.073)	0.35 (0.02)	6.2 (0.12)	0.415 (0.029)	1.95 (0.072)	0.771 (0.034)
Benzo(g,h,i)perylene	190000	180	--	0.557 (0.073)	0.28 (0.02)	3.7 (0.12)	0.281 (0.029)	1.52 (0.072)	0.678 (0.034)
Chrysene	190000	230	--	0.718 (0.073)	0.27 (0.02)	6.3 (0.12)	0.325 (0.029)	2.89 (0.072)	0.987 (0.034)
Fluorene	190000	3800	--	0.1 (0.073)	0.04 (0.02)	2.4 (0.12)	0.0428 (0.029)	1.73 (0.072)	0.141 (0.034)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	ND (0.0053)	0.52 (0.02)	12 (0.12)	ND (0.0043)	0.816 (0.35)	ND (0.0049)
Phenanthrene	190000	10000	--	0.792 (0.073)	0.34 (0.02)	4.1 (0.12)	0.527 (0.029)	4.08 (0.072)	0.932 (0.034)
Pyrene	190000	2200	--	0.928 (0.073)	0.34 (0.02)	10 (0.12)	0.664 (0.029)	4.06 (0.072)	1.69 (0.034)
Metals									
Lead	190000	450	--	313 (2.5)	350 (1.12)	467 (1.32)	26.1 (2)	594 (2.5)	360 (2.5)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-67 BH-12-67_3' 2.5 - 3.0 11/29/2012	AOI7 BH-12-68 BH-12-68_3' 2.5 - 3.0 11/29/2012	AOI7 BH-12-69 BH-12-69_2.5' 2.0 - 2.5 11/29/2012	AOI7 BH-12-70 BH-12-70_4' 3.5 - 4.0 11/28/2012	AOI7 BH-12-73 BH-12-73_5' 4.5 - 5.0 11/28/2012	AOI7 BH-12-74 BH-12-74_4' 3.5 - 4.0 11/28/2012
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.0013)	0.00097 (0.00089)	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
Cumene	10000	2500	2500	ND (0.0064)	ND (0.0045)	ND (0.0039)	ND (0.006)	ND (0.006)	ND (0.006)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.0013)	ND (0.00089)	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
Ethyl Benzene	1000	70	46	ND (0.0013)	ND (0.00089)	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0013)	ND (0.00089)	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
Toluene	10000	100	44	ND (0.0013)	ND (0.00089)	ND (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.0064)	ND (0.0045)	ND (0.0039)	ND (0.006)	ND (0.006)	ND (0.006)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.0064)	ND (0.0045)	ND (0.0039)	ND (0.006)	ND (0.006)	ND (0.006)
Xylenes (total)	9100	1000	990	0.0024 (0.0013)	ND (0.00089)	0.002 (0.00079)	ND (0.006)	ND (0.006)	ND (0.006)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	0.791 (0.039)	0.158 (0.064)	1.54 (0.031)	ND (0.019)	0.12 (0.024)	0.85 (0.02)
Benzo(a)anthracene	190000	340	--	1.52 (0.039)	0.39 (0.064)	2.77 (0.031)	ND (0.019)	0.24 (0.024)	1.9 (0.02)
Benzo(a)pyrene	190000	46	--	1.57 (0.039)	0.392 (0.064)	2.38 (0.031)	ND (0.019)	0.22 (0.024)	1.6 (0.02)
Benzo(b)fluoranthene	190000	170	--	1.55 (0.039)	0.337 (0.064)	2.64 (0.031)	ND (0.019)	0.32 (0.024)	1.9 (0.02)
Benzo(g,h,i)perylene	190000	180	--	1.01 (0.039)	0.305 (0.064)	1.71 (0.031)	ND (0.019)	0.21 (0.024)	1.1 (0.02)
Chrysene	190000	230	--	1.65 (0.039)	0.449 (0.064)	2.67 (0.031)	ND (0.019)	0.25 (0.024)	2.2 (0.02)
Fluorene	190000	3800	--	0.426 (0.039)	ND (0.064)	0.459 (0.031)	ND (0.019)	0.045 (0.024)	0.18 (0.02)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	ND (0.0064)	ND (0.0045)	ND (0.0039)	ND (0.019)	0.11 (0.024)	0.19 (0.02)
Phenanthrene	190000	10000	--	1.66 (0.039)	0.433 (0.064)	5.63 (0.15)	ND (0.019)	0.26 (0.024)	3.7 (0.02)
Pyrene	190000	2200	--	2.31 (0.039)	0.565 (0.064)	5.68 (0.15)	ND (0.019)	0.36 (0.024)	4.5 (0.02)
Metals									
Lead	190000	450	--	672 (2.6)	210 (2.4)	43.5 (2.2)	7.46 (0.21)	27.3 (0.275)	538 (2.26)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-76 BH-12-76_3' 2.5 - 3.0 11/28/2012	AOI7 BH-12-77 BH-12-77_3' 2.5 - 3.0 11/28/2012	AOI7 BH-12-80 BH-12-80_3.0' 2.5 - 3.0 11/27/2012	AOI7 BH-12-83 BH-12-83_3.0' 2.5 - 3.0 11/27/2012	AOI7 BH-12-84 BH-12-84_3.0' 2.5 - 3.0 11/27/2012	AOI7 BH-12-85 BH-12-85_3.0' 2.5 - 3.0 11/27/2012
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	ND (0.00086)	2.35 (0.099)
Cumene	10000	2500	2500	ND (0.009)	ND (0.004)	ND (0.0054)	ND (0.0085)	ND (0.0043)	ND (0.49)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	ND (0.00086)	ND (0.099)
Ethyl Benzene	1000	70	46	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	ND (0.00086)	0.382 (0.099)
Methyl tert-butyl ether	9800	2	1.4	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	ND (0.00086)	ND (0.099)
Toluene	10000	100	44	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	0.0011 (0.00086)	1.16 (0.099)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.009)	ND (0.004)	ND (0.0054)	ND (0.0085)	ND (0.0043)	1.03 (0.49)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.009)	ND (0.004)	ND (0.0054)	ND (0.0085)	ND (0.0043)	ND (0.49)
Xylenes (total)	9100	1000	990	ND (0.009)	ND (0.004)	ND (0.0011)	ND (0.0017)	0.0012 (0.00086)	1.64 (0.099)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	1.5 (0.026)	ND (0.018)	0.0448 (0.03)	0.362 (0.047)	ND (0.033)	0.256 (0.045)
Benzo(a)anthracene	190000	340	--	0.87 (0.026)	0.026 (0.018)	0.152 (0.03)	0.845 (0.047)	0.0454 (0.033)	0.455 (0.045)
Benzo(a)pyrene	190000	46	--	0.66 (0.026)	0.028 (0.018)	0.161 (0.03)	0.87 (0.047)	0.043 (0.033)	0.524 (0.045)
Benzo(b)fluoranthene	190000	170	--	1.1 (0.026)	0.032 (0.018)	0.158 (0.03)	0.973 (0.047)	0.0646 (0.033)	0.46 (0.045)
Benzo(g,h,i)perylene	190000	180	--	0.56 (0.026)	0.02 (0.018)	0.106 (0.03)	0.693 (0.047)	0.0338 (0.033)	0.494 (0.045)
Chrysene	190000	230	--	1.1 (0.026)	0.032 (0.018)	0.151 (0.03)	0.887 (0.047)	0.0657 (0.033)	0.518 (0.045)
Fluorene	190000	3800	--	0.78 (0.026)	ND (0.018)	ND (0.03)	0.122 (0.047)	ND (0.033)	0.139 (0.045)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	18 (0.13)	ND (0.018)	ND (0.0054)	ND (0.0085)	ND (0.0043)	1.04 (0.49)
Phenanthrene	190000	10000	--	5.2 (0.026)	ND (0.018)	0.217 (0.03)	1.01 (0.047)	0.0508 (0.033)	0.613 (0.045)
Pyrene	190000	2200	--	1.8 (0.026)	0.035 (0.018)	0.276 (0.03)	1.03 (0.047)	0.0768 (0.033)	0.54 (0.045)
Metals									
Lead	190000	450	--	380 (1.49)	4.4 (0.207)	104 (2.3)	264 (3.2)	58 (2.3)	344 (2.8)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7 BH-12-87 BH-12-87_3.0' 2.5 - 3.0 11/27/2012	AOI7 BH-12-88 BH-12-88_2.5' 2.0 - 2.5 11/27/2012	AOI7-BH-02-2019 AOI7-BH-02-2019(2.0-2.5) 2.0 - 2.5 3/26/2019	AOI7-BH-03-2019 AOI7-BH-03-2019(2.5-3.0) 2.5 - 3.0 3/22/2019	AOI7-BH-04-2019 AOI7-BH-04-2019(2.5-3.0) 2.5 - 3.0 3/22/2019	AOI7-BH-10-2019 AOI7-BH-10-2019(2.0-2.5) 2.0 - 2.5 3/26/2019
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.0019)	ND (0.001)	0.05 J (0.29)	ND (0.006)	0.44 (0.27)	ND (0.26)
Cumene	10000	2500	2500	ND (0.0095)	ND (0.0051)	0.62 (0.29)	ND (0.006)	0.062 J (0.27)	ND (0.26)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.0019)	ND (0.001)	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.0019)	ND (0.001)	0.055 J (0.29)	ND (0.006)	0.058 J (0.27)	0.029 J (0.26)
Methyl tert-butyl ether	9800	2	1.4	ND (0.0019)	ND (0.001)	ND (0.29)	0.001 J (0.006)	ND (0.27)	ND (0.26)
Toluene	10000	100	44	ND (0.0019)	ND (0.001)	0.054 J (0.29)	ND (0.006)	0.3 (0.27)	0.2 J (0.26)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.0095)	ND (0.0051)	0.11 J (0.29)	ND (0.006)	0.042 J (0.27)	ND (0.26)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.0095)	ND (0.0051)	0.046 J (0.29)	ND (0.006)	ND (0.27)	0.033 J (0.26)
Xylenes (total)	9100	1000	990	ND (0.0019)	ND (0.001)	0.23 J (0.29)	ND (0.006)	0.17 J (0.27)	0.048 J (0.26)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	0.204 (0.047)	ND (0.037)	NA	NA	NA	NA
Benzo(a)anthracene	190000	340	--	0.662 (0.047)	0.0591 (0.037)	NA	NA	NA	NA
Benzo(a)pyrene	190000	46	--	0.695 (0.047)	0.0748 (0.037)	NA	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	0.593 (0.047)	0.129 (0.037)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.56 (0.047)	0.0754 (0.037)	NA	NA	NA	NA
Chrysene	190000	230	--	0.687 (0.047)	0.0824 (0.037)	NA	NA	NA	NA
Fluorene	190000	3800	--	0.0573 (0.047)	ND (0.037)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	ND (0.0095)	ND (0.0051)	1.9 (0.29)	0.0009 J (0.006)	0.16 J (0.27)	0.23 J (0.26)
Phenanthrene	190000	10000	--	0.611 (0.047)	ND (0.037)	NA	NA	NA	NA
Pyrene	190000	2200	--	0.896 (0.047)	0.0767 (0.037)	NA	NA	NA	NA
Metals									
Lead	190000	450	--	1110 (2.9)	198 (2.4)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-13-45 AOI7-BH-13-45_2-2.5_031313 2.0 - 2.5 3/13/2013	AOI7-BH-13-47 AOI7-BH-13-47_2.5-3_031313 2.5 - 3.0 3/13/2013	AOI7-BH-13-48 AOI7-BH-13-48_2.5-3_031313 2.5 - 3.0 3/13/2013	AOI7-BH-16-001 AOI7-BH-16-001-2-4-070116 2.0 - 4.0 7/1/2016	AOI7-BH-16-001 AOI7-BH-16-001D-2-4-070116 2.0 - 4.0 7/1/2016	AOI7-BH-16-011 AOI7-BH-16-011-062816-2-4 2.0 - 4.0 6/28/2016	
Volatile Organic Compounds										
Benzene	330	0.5	0.13	ND (0.13)	ND (0.16)	0.845 (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
Cumene	10000	2500	2500	ND (0.64)	0.87 (0.79)	1.96 (0.56)	ND (0.005)	ND (0.006)	ND (0.006)	
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.13)	ND (0.16)	ND (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
Ethyl Benzene	1000	70	46	ND (0.13)	ND (0.16)	0.401 (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
Methyl tert-butyl ether	9800	2	1.4	ND (0.13)	ND (0.16)	ND (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
Toluene	10000	100	44	ND (0.13)	0.475 (0.16)	1.08 (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
1,2,4-Trimethylbenzene	5400	300	300	ND (0.64)	ND (0.79)	ND (0.56)	ND (0.005)	ND (0.006)	ND (0.006)	
1,3,5-Trimethylbenzene	5400	93	93	ND (0.64)	ND (0.79)	ND (0.56)	ND (0.005)	ND (0.006)	ND (0.006)	
Xylenes (total)	9100	1000	990	0.394 (0.13)	0.364 (0.16)	1.58 (0.11)	ND (0.005)	ND (0.006)	ND (0.006)	
Semivolatile Organic Compounds										
Anthracene	190000	350	--	0.256 (0.21)	2.03 (0.24)	1.12 (0.077)	ND (0.022)	ND (0.022)	2 (0.049)	
Benzo(a)anthracene	190000	340	--	0.55 (0.21)	3.13 (0.24)	1.56 (0.077)	0.007 J (0.022)	0.006 J (0.022)	1.8 (0.049)	
Benzo(a)pyrene	190000	46	--	0.6 (0.21)	2.5 (0.24)	1.5 (0.077)	0.009 J (0.022)	0.007 J (0.022)	1.5 (0.049)	
Benzo(b)fluoranthene	190000	170	--	0.643 (0.21)	2.4 (0.24)	1.44 (0.077)	0.011 J (0.022)	0.007 J (0.022)	1.7 (0.049)	
Benzo(g,h,i)perylene	190000	180	--	0.601 (0.21)	1.37 (0.24)	0.986 (0.077)	0.01 J (0.022)	ND (0.022)	1.5 (0.049)	
Chrysene	190000	230	--	1.29 (0.21)	4.13 (0.24)	2.07 (0.077)	0.008 J (0.022)	0.005 J (0.022)	2.2 (0.049)	
Fluorene	190000	3800	--	ND (0.21)	3.36 (0.24)	1.58 (0.077)	ND (0.022)	ND (0.022)	1.4 (0.049)	
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA	
Naphthalene	77	25	25	ND (0.21)	ND (0.24)	ND (0.077)	ND (0.022)	ND (0.022)	10 (0.049)	
Phenanthrene	190000	10000	--	0.217 (0.21)	7.92 (0.24)	2.27 (0.077)	0.006 J (0.022)	ND (0.022)	4 (0.049)	
Pyrene	190000	2200	--	1.95 (0.21)	5.58 (0.24)	3.34 (0.077)	0.012 J (0.022)	0.007 J (0.022)	3 (0.049)	
Metals										
Lead	190000	450	--	753 (2)	567 (2)	348 (2.5)	2.19 (1.42)	2.23 (1.34)	439 (1.52)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-013 AOI7-BH-16-013-2-4-062916 2.0 - 4.0 6/29/2016	AOI7-BH-16-015 AOI7-BH-16-015-2-4-062916 2.0 - 4.0 6/29/2016	AOI7-BH-16-017 AOI7-BH-16-017-2-4-071116 2.0 - 4.0 7/11/2016	AOI7-BH-16-018 AOI7-BH-16-018-2-4-071116 2.0 - 4.0 7/11/2016	AOI7-BH-16-020 AOI7-BH-16-020-2-4-070116 2.0 - 4.0 7/1/2016	AOI7-BH-16-021 AOI7-BH-16-021-2-4-063016 2.0 - 4.0 6/30/2016
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.081 J (0.66)	ND (0.66)	NA	NA	0.15 J (0.66)	ND (0.007)
Cumene	10000	2500	2500	ND (0.66)	ND (0.66)	NA	NA	ND (0.66)	ND (0.007)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.66)	ND (0.66)	NA	NA	ND (0.66)	ND (0.007)
Ethyl Benzene	1000	70	46	ND (0.66)	ND (0.66)	NA	NA	0.23 J (0.66)	ND (0.007)
Methyl tert-butyl ether	9800	2	1.4	ND (0.66)	ND (0.66)	NA	NA	ND (0.66)	ND (0.007)
Toluene	10000	100	44	0.28 J (0.66)	0.43 J (0.66)	NA	NA	1.7 (0.66)	ND (0.007)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.66)	ND (0.66)	NA	NA	0.18 J (0.66)	ND (0.007)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.66)	ND (0.66)	NA	NA	ND (0.66)	ND (0.007)
Xylenes (total)	9100	1000	990	ND (0.66)	ND (0.66)	NA	NA	0.41 J (0.66)	ND (0.007)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	4.3 (0.15)	2.6 (0.061)	NA	NA	1.2 (0.26)	1.1 (0.28)
Benzo(a)anthracene	190000	340	--	3.5 (0.15)	2.3 (0.061)	NA	NA	1.5 (0.26)	1.9 (0.28)
Benzo(a)pyrene	190000	46	--	1.8 (0.15)	1.8 (0.061)	2.8 (0.75)	1.2 (0.73)	1.8 (0.26)	1.9 (0.28)
Benzo(b)fluoranthene	190000	170	--	2.3 (0.15)	2.2 (0.061)	NA	NA	2.1 (0.26)	2.3 (0.28)
Benzo(g,h,i)perylene	190000	180	--	1 (0.15)	1.3 (0.061)	NA	NA	1.6 (0.26)	1.1 (0.28)
Chrysene	190000	230	--	4.2 (0.15)	2.9 (0.061)	NA	NA	1.8 (0.26)	2.3 (0.28)
Fluorene	190000	3800	--	3.9 (0.15)	1.9 (0.061)	NA	NA	0.55 (0.26)	1.2 (0.28)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	10 (0.15)	10 (0.061)	NA	NA	15 (0.26)	5.5 (0.28)
Phenanthrene	190000	10000	--	15 (0.15)	4.4 (0.061)	NA	NA	3.3 (0.26)	2.4 (0.28)
Pyrene	190000	2200	--	10 (0.15)	5.4 (0.061)	NA	NA	1.9 (0.26)	4.1 (0.28)
Metals									
Lead	190000	450	--	425 (2)	452 (1.8)	NA	NA	281 (2.02)	154 (2.05)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-021 AOI7-BH-16-021D-2-4-063016 2.0 - 4.0 6/30/2016 Field Duplicate	AOI7-BH-16-022 AOI7-BH-16-022-2-4-070516 2.0 - 4.0 7/5/2016	AOI7-BH-16-023 AOI7-BH-16-023-2-4-070116 2.0 - 4.0 7/1/2016	AOI7-BH-16-024 AOI7-BH-16-024-2-4-070716 2.0 - 4.0 7/7/2016	AOI7-BH-16-025 AOI7-BH-16-025-4.75-5.0-070116 4.8 - 5.0 7/1/2016	AOI7-BH-16-025 AOI7-BH-16-025D-4.75-5.0-070116 4.8 - 5.0 7/1/2016 Field Duplicate	
Volatile Organic Compounds										
Benzene	330	0.5	0.13	0.079 J (0.47)	ND (0.006)	0.0009 J (0.008)	0.0007 J (0.004)	1.4 J (4.9)	0.93 J (5.2)	
Cumene	10000	2500	2500	ND (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	12 (4.9)	12 (5.2)	
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	ND (4.9)	ND (5.2)	
Ethyl Benzene	1000	70	46	ND (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	2 J (4.9)	1.3 J (5.2)	
Methyl tert-butyl ether	9800	2	1.4	ND (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	ND (4.9)	ND (5.2)	
Toluene	10000	100	44	1.1 (0.47)	0.002 J (0.006)	0.006 J (0.008)	ND (0.004)	1.2 J (4.9)	ND (5.2)	
1,2,4-Trimethylbenzene	5400	300	300	0.12 J (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	1.1 J (4.9)	1.2 J (5.2)	
1,3,5-Trimethylbenzene	5400	93	93	ND (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	ND (4.9)	ND (5.2)	
Xylenes (total)	9100	1000	990	0.17 J (0.47)	ND (0.006)	ND (0.008)	ND (0.004)	3.8 J (4.9)	3.1 J (5.2)	
Semivolatile Organic Compounds										
Anthracene	190000	350	--	1.9 (0.25)	2.6 (0.12)	1.1 (0.28)	ND (0.018)	2.9 (0.26)	1.9 (0.13)	
Benzo(a)anthracene	190000	340	--	3 (0.25)	3.6 (0.12)	1.2 (0.28)	0.01 J (0.018)	2.6 (0.26)	1.4 (0.13)	
Benzo(a)pyrene	190000	46	--	2.7 (0.25)	3.2 (0.12)	1.6 (0.28)	0.012 J (0.018)	2.5 (0.26)	1.4 (0.13)	
Benzo(b)fluoranthene	190000	170	--	3.2 (0.25)	4.4 (0.12)	2.2 (0.28)	0.015 J (0.018)	3 (0.26)	1.7 (0.13)	
Benzo(g,h,i)perylene	190000	180	--	1.6 (0.25)	2.5 (0.12)	2 (0.28)	0.016 J (0.018)	1.8 (0.26)	1.1 (0.13)	
Chrysene	190000	230	--	3.3 (0.25)	3.8 (0.12)	1.6 (0.28)	0.011 J (0.018)	3 (0.26)	1.6 (0.13)	
Fluorene	190000	3800	--	2.4 (0.25)	1.4 (0.12)	0.36 (0.28)	ND (0.018)	2.2 (0.26)	1.6 (0.13)	
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA	
Naphthalene	77	25	25	9.3 (0.25)	12 (0.12)	12 (0.28)	0.009 J (0.018)	80 (0.52)	47 (0.53)	
Phenanthrene	190000	10000	--	3.9 (0.25)	7.5 (0.12)	3.1 (0.28)	0.008 J (0.018)	8.4 (0.26)	6.4 (0.13)	
Pyrene	190000	2200	--	6.6 (0.25)	5.6 (0.12)	1.6 (0.28)	0.014 J (0.018)	4.7 (0.26)	2.8 (0.13)	
Metals										
Lead	190000	450	--	111 (1.74)	224 (1.43)	291 (2)	8.79 (1.49)	469 (2.22)	306 (2.13)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-026 AOI7-BH-16-026-2-4-070116 2.0 - 4.0 7/1/2016	AOI7-BH-16-028 AOI7-BH-16-028-2-4-071116 2.0 - 4.0 7/11/2016	AOI7-BH-16-029 AOI7-BH-16-029-2-4-070816 2.0 - 4.0 7/8/2016	AOI7-BH-16-029 AOI7-BH-16-029D-2-4-070816 2.0 - 4.0 7/8/2016 Field Duplicate	AOI7-BH-16-030 AOI7-BH-16-030-2-4-071116 2.0 - 4.0 7/11/2016	AOI7-BH-16-031 AOI7-BH-16-031-2-4-071216 2.0 - 4.0 7/12/2016	
Volatile Organic Compounds										
Benzene	330	0.5	0.13	0.17 J (0.43)	0.014 (0.006)	6.6 (0.65)	7.4 (0.58)	1.2 J (1.3)	ND (0.4)	
Cumene	10000	2500	2500	0.36 J (0.43)	ND (0.006)	9.3 (0.65)	5.2 (0.58)	11 (1.3)	ND (0.4)	
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.43)	ND (0.006)	ND (0.65)	ND (0.58)	ND (1.3)	ND (0.4)	
Ethyl Benzene	1000	70	46	0.21 J (0.43)	ND (0.006)	4.8 (0.65)	3.9 (0.58)	0.3 J (1.3)	ND (0.4)	
Methyl tert-butyl ether	9800	2	1.4	ND (0.43)	ND (0.006)	ND (0.65)	ND (0.58)	ND (1.3)	ND (0.4)	
Toluene	10000	100	44	0.2 J (0.43)	0.015 (0.006)	2 (0.65)	2 (0.58)	0.51 J (1.3)	ND (0.4)	
1,2,4-Trimethylbenzene	5400	300	300	0.35 J (0.43)	0.001 J (0.006)	15 (0.65)	9.6 (0.58)	0.42 J (1.3)	ND (0.4)	
1,3,5-Trimethylbenzene	5400	93	93	0.11 J (0.43)	ND (0.006)	13 (0.65)	7.7 (0.58)	ND (1.3)	ND (0.4)	
Xylenes (total)	9100	1000	990	0.37 J (0.43)	0.007 (0.006)	22 (0.65)	17 (0.58)	0.9 J (1.3)	ND (0.4)	
Semivolatile Organic Compounds										
Anthracene	190000	350	--	0.83 (0.11)	1.6 (0.24)	0.75 (0.091)	0.59 (0.093)	1.6 (0.098)	0.015 J (0.024)	
Benzo(a)anthracene	190000	340	--	0.68 (0.11)	7.4 (0.24)	1.2 (0.091)	0.84 (0.093)	2.2 (0.098)	0.008 J (0.024)	
Benzo(a)pyrene	190000	46	--	0.55 (0.11)	3.5 (0.24)	0.87 (0.091)	0.65 (0.093)	1.4 (0.098)	0.008 J (0.024)	
Benzo(b)fluoranthene	190000	170	--	0.67 (0.11)	5.1 (0.24)	1.4 (0.091)	1 (0.093)	1.8 (0.098)	0.012 J (0.024)	
Benzo(g,h,i)perylene	190000	180	--	0.41 (0.11)	1.7 (0.24)	0.74 (0.091)	0.56 (0.093)	0.77 (0.098)	0.005 J (0.024)	
Chrysene	190000	230	--	0.8 (0.11)	7.4 (0.24)	1.8 (0.091)	1.4 (0.093)	2.7 (0.098)	0.017 J (0.024)	
Fluorene	190000	3800	--	1 (0.11)	0.43 (0.24)	1.3 (0.091)	1.1 (0.093)	2.4 (0.098)	0.015 J (0.024)	
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA	
Naphthalene	77	25	25	6.5 (0.11)	3.4 (0.24)	4.8 (0.091)	2.8 (0.093)	0.68 (0.098)	0.027 (0.024)	
Phenanthrene	190000	10000	--	3.5 (0.11)	5 (0.24)	4.1 (0.091)	3.4 (0.093)	8.6 (0.098)	0.034 (0.024)	
Pyrene	190000	2200	--	1.8 (0.11)	12 (0.24)	2.1 (0.091)	1.4 (0.093)	4 (0.098)	0.029 (0.024)	
Metals										
Lead	190000	450	--	62.4 (1.46)	276 (2.05)	192 (1.41)	201 (1.52)	140 (1.61)	3.36 (2.06)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-033 AOI7-BH-16-033-2-4-071116 2.0 - 4.0 7/11/2016	AOI7-BH-16-034 AOI7-BH-16-034-2-4-070816 2.0 - 4.0 7/8/2016	AOI7-BH-16-036 AOI7-BH-16-036-2-4-063016 2.0 - 4.0 6/30/2016	AOI7-BH-16-037 AOI7-BH-16-037-2-4-062916 2.0 - 4.0 6/29/2016	AOI7-BH-16-038 AOI7-BH-16-038-2-4-063016 2.0 - 4.0 6/30/2016	AOI7-BH-16-038 AOI7-BH-16-038D-2-4-063016 2.0 - 4.0 6/30/2016	AOI7-BH-16-038 AOI7-BH-16-038D-2-4-063016 2.0 - 4.0 6/30/2016	Field Duplicate
Volatile Organic Compounds											
Benzene	330	0.5	0.13	NA	0.12 J (0.54)	0.11 J (0.58)	0.41 J (2.3)	ND (0.008)	ND (0.007)	ND (0.007)	
Cumene	10000	2500	2500	NA	0.47 J (0.54)	ND (0.58)	ND (2.3)	0.024 (0.008)	0.011 (0.007)	0.011 (0.007)	
1,2-Dibromoethane	4.2	0.005	0.0013	NA	ND (0.54)	ND (0.58)	ND (2.3)	ND (0.008)	ND (0.007)	ND (0.007)	
Ethyl Benzene	1000	70	46	NA	0.13 J (0.54)	0.13 J (0.58)	ND (2.3)	ND (0.008)	0.002 J (0.007)	0.002 J (0.007)	
Methyl tert-butyl ether	9800	2	1.4	NA	ND (0.54)	ND (0.58)	ND (2.3)	ND (0.008)	ND (0.007)	ND (0.007)	
Toluene	10000	100	44	NA	1.3 (0.54)	1.5 (0.58)	1 J (2.3)	0.004 J (0.008)	0.002 J (0.007)	0.002 J (0.007)	
1,2,4-Trimethylbenzene	5400	300	300	NA	2 (0.54)	0.2 J (0.58)	ND (2.3)	0.013 (0.008)	0.007 (0.007)	0.007 (0.007)	
1,3,5-Trimethylbenzene	5400	93	93	NA	0.34 J (0.54)	ND (0.58)	ND (2.3)	0.013 (0.008)	0.006 J (0.007)	0.006 J (0.007)	
Xylenes (total)	9100	1000	990	NA	2.8 (0.54)	0.29 J (0.58)	0.85 J (2.3)	0.01 (0.008)	0.007 (0.007)	0.007 (0.007)	
Semivolatile Organic Compounds											
Anthracene	190000	350	--	NA	2.1 (0.13)	3.6 (0.29)	0.63 (0.28)	2.1 (0.25)	1.8 (0.26)	1.8 (0.26)	
Benzo(a)anthracene	190000	340	--	NA	1.1 (0.13)	2.3 (0.29)	0.73 (0.28)	1.7 (0.25)	1.8 (0.26)	1.8 (0.26)	
Benzo(a)pyrene	190000	46	--	NA	0.84 (0.13)	1.8 (0.29)	0.9 (0.28)	1.7 (0.25)	1.9 (0.26)	1.9 (0.26)	
Benzo(b)fluoranthene	190000	170	--	NA	1.2 (0.13)	2.3 (0.29)	1.2 (0.28)	2.1 (0.25)	2.3 (0.26)	2.3 (0.26)	
Benzo(g,h,i)perylene	190000	180	--	NA	0.81 (0.13)	1.1 (0.29)	0.87 (0.28)	2.3 (0.25)	2.1 (0.26)	2.1 (0.26)	
Chrysene	190000	230	--	NA	1.5 (0.13)	2.7 (0.29)	0.93 (0.28)	2.3 (0.25)	2.6 (0.26)	2.6 (0.26)	
Fluorene	190000	3800	--	NA	1.5 (0.13)	4.1 (0.29)	0.45 (0.28)	1.5 (0.25)	1.4 (0.26)	1.4 (0.26)	
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	77	25	25	NA	25 (0.13)	17 (0.29)	6.7 (0.28)	17 (0.25)	15 (0.26)	15 (0.26)	
Phenanthrene	190000	10000	--	NA	6.4 (0.13)	6.3 (0.29)	2.1 (0.28)	5.8 (0.25)	5.1 (0.26)	5.1 (0.26)	
Pyrene	190000	2200	--	NA	1.9 (0.13)	6.9 (0.29)	1.1 (0.28)	3.1 (0.25)	2.9 (0.26)	2.9 (0.26)	
Metals											
Lead	190000	450	--	ND (7.37)	375 (2.27)	272 (2.35)	227 (1.73)	329 (1.93)	360 (1.57)	360 (1.57)	

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-16-041 AOI7-BH-16-041-2-4-070616 2.0 - 4.0 7/6/2016	AOI7-BH-16-042 AOI7-BH-16-042-2-4-070616 2.0 - 4.0 7/6/2016	AOI7-BH-16-043 AOI7-BH-16-043-2-4-062916 2.0 - 4.0 6/29/2016	AOI7-BH-16-046 AOI7-BH-16-046-2-4-070816 2.0 - 4.0 7/8/2016	AOI7-BH-16-047 AOI7-BH-16-047-2-4-070816 2.0 - 4.0 7/8/2016	AOI7-BH-18-2019 AOI7-BH-18-2019(2.5-3.0) 2.5 - 3.0 3/26/2019
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.012 (0.007)	ND (0.54)	0.005 J (0.006)	0.14 J (0.38)	ND (1.2)	0.002 J (0.006)
Cumene	10000	2500	2500	ND (0.007)	ND (0.54)	ND (0.006)	0.48 (0.38)	2.3 (1.2)	ND (0.006)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.007)	ND (0.54)	ND (0.006)	ND (0.38)	ND (1.2)	NA
Ethyl Benzene	1000	70	46	ND (0.007)	ND (0.54)	0.001 J (0.006)	0.11 J (0.38)	ND (1.2)	0.0008 J (0.006)
Methyl tert-butyl ether	9800	2	1.4	ND (0.007)	ND (0.54)	ND (0.006)	ND (0.38)	ND (1.2)	ND (0.006)
Toluene	10000	100	44	0.007 J (0.007)	0.22 J (0.54)	0.005 J (0.006)	0.4 (0.38)	ND (1.2)	0.002 J (0.006)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.007)	ND (0.54)	ND (0.006)	0.11 J (0.38)	0.47 J (1.2)	0.002 J (0.006)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.007)	ND (0.54)	0.001 J (0.006)	ND (0.38)	ND (1.2)	0.0006 J (0.006)
Xylenes (total)	9100	1000	990	0.003 J (0.007)	ND (0.54)	0.001 J (0.006)	0.45 (0.38)	ND (1.2)	0.004 J (0.006)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	3.5 (0.12)	1.3 (1.2)	1.1 (0.022)	4.1 (0.22)	2 (0.48)	NA
Benzo(a)anthracene	190000	340	--	4.1 (0.12)	1.8 (1.2)	2.6 (0.022)	7.1 (0.22)	1.8 (0.48)	NA
Benzo(a)pyrene	190000	46	--	3.3 (0.12)	2 (1.2)	1.8 (0.022)	5.3 (0.22)	1 (0.48)	NA
Benzo(b)fluoranthene	190000	170	--	4.7 (0.12)	2.4 (1.2)	2.2 (0.022)	5.9 (0.22)	1.2 (0.48)	NA
Benzo(g,h,i)perylene	190000	180	--	1.9 (0.12)	1.4 (1.2)	1.1 (0.022)	3.5 (0.22)	0.77 (0.48)	NA
Chrysene	190000	230	--	4.3 (0.12)	2 (1.2)	2.6 (0.022)	7.4 (0.22)	2.7 (0.48)	NA
Fluorene	190000	3800	--	2.4 (0.12)	0.76 J (1.2)	0.47 (0.022)	4.3 (0.22)	2.8 (0.48)	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	15 (0.12)	3.8 (1.2)	2.4 (0.022)	7.4 (0.22)	ND (0.48)	0.002 J (0.006)
Phenanthrene	190000	10000	--	6.5 (0.12)	3.2 (1.2)	2.2 (0.022)	8.4 (0.22)	9.1 (0.48)	NA
Pyrene	190000	2200	--	9.6 (0.12)	3.4 (1.2)	3.9 (0.022)	10 (0.22)	3.9 (0.48)	NA
Metals									
Lead	190000	450	--	269 (1.73)	181 (2.19)	2590 (7.11)	408 (1.86)	34.1 (1.23)	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-BH-21-02 AOI7-BH-21-02(3.0-3.5) 3.0 - 3.5 11/30/2021	AOI7-BH-21-04 AOI7-BH-21-04(2-3) 2.0 - 3.0 11/30/2021	AOI7-PE-01 AOI7-PE-01-2019(3.0) 3 12/12/2019	AOI7-PE-02 AOI7-PE-02-2019(4.5) 4.5 12/12/2019	AOI7-PE-03 AOI7-PE-03-2019(3.0) 3 12/12/2019	AOI7-PE-04 AOI7-PE-04-2019(2.5) 2.5 12/12/2019
Volatile Organic Compounds									
Benzene	330	0.5	0.13	<u>0.33 (0.32)</u>	0.053 J,IQ (0.28)	<u>0.2 J (0.34)</u>	ND (0.007)	0.025 (0.007)	0.032 J (0.26)
Cumene	10000	2500	2500	1.1 (0.32)	0.91 IQ (0.28)	0.06 J (0.34)	0.0009 J (0.007)	0.003 J (0.007)	0.63 (0.26)
1,2-Dibromoethane	4.2	0.005	0.0013	ND,IQ (0.00059)	ND,IQ (0.00057)	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	0.35 (0.32)	0.043 J,IQ (0.28)	0.04 J (0.34)	ND (0.007)	0.004 J (0.007)	0.028 J (0.26)
Methyl tert-butyl ether	9800	2	1.4	ND (0.32)	ND,IQ (0.28)	ND (0.34)	0.001 J (0.007)	ND (0.007)	ND (0.26)
Toluene	10000	100	44	0.32 (0.32)	0.11 J,IQ (0.28)	0.19 J (0.34)	ND (0.007)	0.027 (0.007)	0.033 J (0.26)
1,2,4-Trimethylbenzene	5400	300	300	0.15 J (0.32)	0.073 J,IQ (0.28)	0.066 J (0.34)	ND (0.007)	0.024 (0.007)	ND (0.26)
1,3,5-Trimethylbenzene	5400	93	93	0.056 J (0.32)	ND,IQ (0.28)	0.043 J (0.34)	ND (0.007)	0.052 (0.007)	ND (0.26)
Xylenes (total)	9100	1000	990	1.4 (0.65)	0.29 J,IQ (0.55)	0.28 J (0.68)	ND (0.015)	0.076 (0.014)	0.097 J (0.53)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	1.8 B,IQ (0.02)	1.9 B,IQ (0.02)	NA	NA	NA	NA
Benzo(a)anthracene	190000	340	--	1.2 B,IQ (0.02)	2.3 B,IQ (0.02)	NA	NA	NA	NA
Benzo(a)pyrene	190000	46	--	1.3 B,IQ (0.02)	2.5 B,IQ (0.02)	NA	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	1.3 B,IQ (0.02)	2.2 B,IQ (0.02)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.71 B,IQ (0.02)	1.2 B,IQ (0.02)	NA	NA	NA	NA
Chrysene	190000	230	--	1.3 B,IQ (0.02)	2.3 B,IQ (0.02)	NA	NA	NA	NA
Fluorene	190000	3800	--	1.6 B,IQ (0.02)	1.3 B,IQ (0.02)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	0.61 B,IQ (0.02)	1.1 B,IQ (0.02)	NA	NA	NA	NA
Naphthalene	77	25	25	0.43 IQ (0.02)	2 IQ (0.02)	0.073 J (0.34)	ND (0.007)	0.007 J (0.007)	ND (0.26)
Phenanthrene	190000	10000	--	5.3 B,IQ (0.1)	5.2 B,IQ (0.098)	NA	NA	NA	NA
Pyrene	190000	2200	--	2.8 B,IQ (0.02)	4.4 B,IQ (0.02)	NA	NA	NA	NA
Metals									
Lead	190000	450	--	140 (1.3)	110 (1.3)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-PE-05 AOI7-PE-05-2019(2.0) 2 12/12/2019	AOI7-PE-06 AOI7-PE-06-2019(4.0) 4 12/12/2019	AOI7-PE-07 AOI7-PE-07-2019(2.5) 2.5 12/12/2019	AOI7-PE-08 AOI7-PE-08-2019(4.0) 4 12/12/2019	AOI7-PE-09 AOI7-PE-09-2019(2.5) 2.5 12/12/2019	AOI7-PE-10 AOI7-PE-10-2019(2.5) 2.5 12/12/2019
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.085 J (0.24)	ND (0.38)	0.024 (0.006)	0.001 J (0.006)	0.006 (0.005)	ND (0.006)
Cumene	10000	2500	2500	0.034 J (0.24)	0.055 J (0.38)	0.002 J (0.006)	0.001 J (0.006)	ND (0.005)	ND (0.006)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.24)	0.064 J (0.38)	0.005 J (0.006)	0.0008 J (0.006)	0.0007 J (0.005)	ND (0.006)
Methyl tert-butyl ether	9800	2	1.4	ND (0.24)	ND (0.38)	ND (0.006)	ND (0.006)	ND (0.005)	0.0008 J (0.006)
Toluene	10000	100	44	0.088 J (0.24)	0.077 J (0.38)	0.035 (0.006)	0.001 J (0.006)	0.008 (0.005)	ND (0.006)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.24)	0.19 J (0.38)	0.013 (0.006)	0.002 J (0.006)	0.002 J (0.005)	ND (0.006)
1,3,5-Trimethylbenzene	5400	93	93	0.036 J (0.24)	0.055 J (0.38)	0.006 J (0.006)	ND (0.006)	0.0008 J (0.005)	ND (0.006)
Xylenes (total)	9100	1000	990	0.14 J (0.48)	0.27 J (0.75)	0.036 (0.012)	0.003 J (0.012)	0.004 J (0.011)	ND (0.012)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	ND (0.24)	0.57 (0.38)	0.007 (0.006)	0.002 J (0.006)	0.003 J (0.005)	0.0008 J (0.006)
Phenanthrene	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	190000	2200	--	NA	NA	NA	NA	NA	NA
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-PE-11 AOI7-PE-11-2019(4.0) 4 12/12/2019	AOI7-PE-12 AOI7-PE-12-2019(3.5) 3.5 12/12/2019	AOI7-PE-21-01 AOI7-PE-21-01-3.5-20211110 3.5 11/10/2021	AOI7-PE-21-02 AOI7-PE-21-02-3.2-20211110 3.2 11/10/2021	AOI7-PE-21-03 AOI7-PE-21-03-2.7-20211110 2.7 11/10/2021	AOI7-PE-21-04 AOI7-PE-21-04-3.5-20211110 3.5 11/10/2021
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.017 (0.007)	ND (0.26)	0.14 J (0.31)	0.077 J (0.4)	0.93 (0.28)	0.28 (0.28)
Cumene	10000	2500	2500	0.19 (0.007)	0.36 (0.26)	6.7 (0.31)	0.79 (0.4)	1.4 (0.28)	2.2 (0.28)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	ND (0.0006)	ND,F2 (0.00064)	0.0022 (0.00055)	0.0022 (0.00058)
Ethyl Benzene	1000	70	46	0.004 J (0.007)	ND (0.26)	0.044 J (0.31)	0.092 J (0.4)	0.28 (0.28)	0.16 J (0.28)
Methyl tert-butyl ether	9800	2	1.4	ND (0.007)	ND (0.26)	ND (0.31)	ND (0.4)	ND (0.28)	ND (0.28)
Toluene	10000	100	44	0.032 (0.007)	0.022 J (0.26)	0.079 J (0.31)	0.23 J (0.4)	1.5 (0.28)	0.24 J (0.28)
1,2,4-Trimethylbenzene	5400	300	300	0.17 (0.007)	ND (0.26)	0.09 J (0.31)	1.8 (0.4)	9.4 (0.28)	4.4 (0.28)
1,3,5-Trimethylbenzene	5400	93	93	0.14 (0.007)	ND (0.26)	0.034 J (0.31)	0.57 (0.4)	2.3 (0.28)	1.2 (0.28)
Xylenes (total)	9100	1000	990	0.042 (0.013)	ND (0.51)	0.41 J (0.62)	0.81 (0.8)	4.3 (0.57)	2.2 (0.56)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	11 (1)	11 (1.1)	11 (0.95)	9.7 (0.99)
Benzo(a)anthracene	190000	340	--	NA	NA	9.4 (1)	21 (1.1)	6.2 (0.95)	6.7 (0.99)
Benzo(a)pyrene	190000	46	--	NA	NA	10 (1)	28 (1.1)	5.4 (0.95)	5.1 (0.99)
Benzo(b)fluoranthene	190000	170	--	NA	NA	8.6 B (1)	27 B (1.1)	3.5 B (0.95)	4.8 B (0.99)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	5.7 B (1)	16 B (1.1)	2.6 B (0.95)	3.6 B (0.99)
Chrysene	190000	230	--	NA	NA	13 (1)	24 (1.1)	12 (0.95)	11 (0.99)
Fluorene	190000	3800	--	NA	NA	9.7 (1)	7 (1.1)	11 (0.95)	11 (0.99)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	4.7 (1)	15 (1.1)	1.9 (0.95)	2.7 (0.99)
Naphthalene	77	25	25	0.004 J (0.007)	ND (0.26)	6.3 F2 (1)	23 (1.1)	4.3 (0.95)	4.8 (0.99)
Phenanthrene	190000	10000	--	NA	NA	18 (1)	19 (1.1)	41 (0.95)	34 (0.99)
Pyrene	190000	2200	--	NA	NA	25 (1)	29 (1.1)	23 (0.95)	20 (0.99)
Metals									
Lead	190000	450	--	NA	NA	54 (1.4)	410 (1.9)	590 (1.2)	190 (1.7)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	AOI7-PE-21-05 AOI7-PE-21-05-2.8-20211110 2.8 11/10/2021	AOI7-TP-21-05 AOI7-TP-21-05-3.5-20211110 3.5 11/10/2021	B90-1 B090A5 2.0 - 4.0 8/24/1992	B90-10 B090B4 2.0 - 4.0 8/25/1992	B90-10DL B090B4DL 2.0 - 4.0 8/25/1992	B90-11 B090B8 2.0 - 4.0 8/26/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.053 J (0.28)	0.15 J (0.4)	30	ND (1.3)	NA	ND (0.005)
Cumene	10000	2500	2500	0.13 J (0.28)	2.9 (0.4)	NA	NA	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.00058)	ND (0.00063)	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.28)	0.51 (0.4)	27	33	NA	ND (0.005)
Methyl tert-butyl ether	9800	2	1.4	ND (0.28)	ND (0.4)	NA	NA	NA	NA
Toluene	10000	100	44	ND (0.28)	0.27 J (0.4)	41	62	NA	ND (0.005)
1,2,4-Trimethylbenzene	5400	300	300	0.099 J (0.28)	10 (0.4)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	0.035 J (0.28)	2.6 (0.4)	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	0.098 J (0.56)	4.5 (0.81)	140	190	NA	ND (0.005)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	1.7 (0.39)	32 (1.1)	NA	NA	NA	NA
Benzo(a)anthracene	190000	340	--	0.92 (0.39)	16 (1.1)	NA	NA	NA	NA
Benzo(a)pyrene	190000	46	--	0.6 (0.39)	11 (1.1)	NA	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	0.53 B (0.39)	7.6 B (1.1)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.44 B (0.39)	7.1 B (1.1)	NA	NA	NA	NA
Chrysene	190000	230	--	1.5 (0.39)	27 (1.1)	NA	NA	NA	NA
Fluorene	190000	3800	--	1.4 (0.39)	27 (1.1)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	0.35 J (0.39)	3.5 (1.1)	NA	NA	NA	NA
Naphthalene	77	25	25	0.22 J (0.39)	5.1 (1.1)	67	8 J	6.9	1
Phenanthrene	190000	10000	--	5.7 (0.39)	120 (1.1)	NA	NA	NA	NA
Pyrene	190000	2200	--	3.7 (0.39)	71 (1.1)	NA	NA	NA	NA
Metals									
Lead	190000	450	--	25 (1.5)	67000 (92)	138 BF	243 BF	NA	381 BF

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B90-12 B090B1 2.0 - 4.0 8/25/1992	B90-12DL B090B1DL 2.0 - 4.0 8/25/1992	B90-13 B090B3 2.0 - 4.0 8/25/1992	B90-14 B090B6 2.0 - 4.0 8/25/1992	B90-14DL B090B6DL 2.0 - 4.0 8/25/1992	B90-15 B090B5 2.0 - 4.0 8/25/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	NA	NA	ND (0.83)	3.8 J	NA	NA
Cumene	10000	2500	2500	NA	NA	13 J	NA	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	ND (17)	NA	NA	NA
Ethyl Benzene	1000	70	46	10 L	NA	13	75 J	NA	3.5 L
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	14 L	NA	18	130 J	NA	2 L
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	37 L	NA	68	500 J	NA	4 L
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	ND (0.88)	NA	NA	NA
Benzo(a)anthracene	190000	340	--	NA	NA	1.1	NA	NA	NA
Benzo(a)pyrene	190000	46	--	NA	NA	0.81 J	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	NA	0.91	NA	NA	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	0.67 J	NA	NA	NA
Naphthalene	77	25	25	13 J	11	11	34 J	35	0.67
Phenanthrene	190000	10000	--	NA	NA	0.79 J	NA	NA	NA
Pyrene	190000	2200	--	NA	NA	1.1	NA	NA	NA
Metals									
Lead	190000	450	--	115 BF	NA	148	110 BF	NA	198 BF

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B90-16 B090C2 2.0 - 4.0 8/26/1992	B90-2 B090A2 2.0 - 4.0 8/24/1992	B90-3 B090A3 2.0 - 4.0 8/24/1992	B90-5 B090A7 2.0 - 4.0 8/24/1992	B90-6 B090B9 2.0 - 4.0 8/26/1992	B91-1 B091A6 2.0 - 4.0 8/27/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	29	0.003	84	21	ND (0.1)	0.64
Cumene	10000	2500	2500	NA	NA	NA	ND (1.9)	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	ND (1.9)	NA	NA
Ethyl Benzene	1000	70	46	6.5	ND (0.0017)	4.1	ND (6)	ND (0.1)	1.5
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	4.5	0.003	5.7	ND (6)	0.65	1.9
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	18	0.011	ND (1.3)	ND (6)	0.32	2.2
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	NA	ND (0.51)	NA	NA
Benzo(a)anthracene	190000	340	--	NA	NA	NA	ND (0.51)	NA	NA
Benzo(a)pyrene	190000	46	--	NA	NA	NA	ND (0.51)	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	NA	NA	ND (0.31)	NA	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	ND (0.51)	NA	NA
Naphthalene	77	25	25	2.3	0.31 J	0.31 J	ND (0.51)	0.75	0.53
Phenanthrene	190000	10000	--	NA	NA	NA	ND (0.51)	NA	NA
Pyrene	190000	2200	--	NA	NA	NA	ND (0.51)	NA	NA
Metals									
Lead	190000	450	--	321 BF	464 BF	313 BF	188	388 BF	257 BF

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B91-10 B091B1 2.0 - 4.0 8/28/1992	B91-11 B091C4 2.0 - 4.0 8/31/1992	B91-12 B091C3 2.0 - 4.0 8/31/1992	B91-13 B091C6 2.0 - 4.0 8/31/1992	B91-14 B091C5 2.0 - 4.0 8/31/1992	B91-15 B091C2 2.0 - 4.0 8/28/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.089)	0.19	ND (0.0016)	ND (0.0015)	0.13	ND (0.11)
Cumene	10000	2500	2500	NA	ND (0.015)	NA	NA	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	ND (0.015)	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	0.29	0.1	ND (0.0016)	ND (0.0015)	0.097	0.27
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	2.6	0.95	ND (0.0016)	0.0017	0.42	0.74
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	2.5	0.16	ND (0.0016)	0.0042	0.11	0.17
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	ND (0.49)	NA	NA	NA	NA
Benzo(a)anthracene	190000	340	--	NA	0.35 J	NA	NA	NA	NA
Benzo(a)pyrene	190000	46	--	NA	0.38 J	NA	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	0.37	NA	NA	NA	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	0.21 J	NA	NA	NA	NA
Naphthalene	77	25	25	2.1	0.31 J	ND (0.52)	0.33 J	0.61	0.77 J
Phenanthrene	190000	10000	--	NA	0.32 J	NA	NA	NA	NA
Pyrene	190000	2200	--	NA	0.37 J	NA	NA	NA	NA
Metals									
Lead	190000	450	--	299	307	121	304	354	300

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B91-16 B091B9 2.0 - 4.0 8/28/1992	B91-16RE B091B9RE 2.0 - 4.0 8/26/1992	B91-17 B091C1 2.0 - 4.0 8/28/1992	B91-18 B091B6 2.0 - 4.0 8/28/1992	B91-2 B091A8 2.0 - 4.0 8/27/1992	B91-20 B091B4 2.0 - 4.0 8/28/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.15	NA	0.18	ND (0.087)	ND (1.3)	ND (0.091)
Cumene	10000	2500	2500	ND (0.014)	NA	NA	7.3	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.014)	NA	NA	ND (1.7)	NA	NA
Ethyl Benzene	1000	70	46	ND (0.089)	NA	0.097	ND (0.087)	1.9	ND (0.091)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.65	NA	0.22	2.7	ND (1.3)	2.6
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	ND (0.089)	NA	0.41	4.4	8	3.2
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	0.18 L	NA	0.65	NA	NA
Benzo(a)anthracene	190000	340	--	0.17 L	0.65 L	NA	1.6	NA	NA
Benzo(a)pyrene	190000	46	--	0.18 L	0.45 L	NA	1.7	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	0.19 L	0.62 L	NA	1.7	NA	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	0.74	NA	NA
Naphthalene	77	25	25	NA	0.56 L	1.1	3.7	3.5	2.4
Phenanthrene	190000	10000	--	0.19 L	0.98 L	NA	2.3	NA	NA
Pyrene	190000	2200	--	0.2 L	0.71 L	NA	2.7	NA	NA
Metals									
Lead	190000	450	--	222	NA	197	182	195	189

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	B91-21 B091B8 2.0 - 4.0 8/28/1992	B91-22 B091B7 2.0 - 4.0 8/28/1992	B91-4 B091A9 2.0 - 4.0 8/27/1992	B91-5 B091A2 2.0 - 4.0 8/26/1992	B91-6 B091A4 2.0 - 4.0 8/27/1992	B91-9 B091B3 2.0 - 4.0 8/28/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.0012)	ND (0.1)	ND (0.092)	ND (1.5)	ND (1)	ND (1.1)
Cumene	10000	2500	2500	NA	NA	NA	NA	1.5	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	ND (1.3)	NA
Ethyl Benzene	1000	70	46	0.0017	ND (0.1)	0.31	1.6	3.6	2.8
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.0037	4.4	2.6	ND (1.5)	ND (1)	ND (1.1)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	0.0078	4.1	0.82	3.3	14	7.9
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	NA	NA	ND (0.35)	NA
Benzo(a)anthracene	190000	340	--	NA	NA	NA	NA	ND (0.35)	NA
Benzo(a)pyrene	190000	46	--	NA	NA	NA	NA	ND (0.35)	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	NA	NA	NA	ND (0.21)	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	ND (0.35)	NA
Naphthalene	77	25	25	0.37 J	1.8	1.5	0.45 J	0.81	0.78
Phenanthrene	190000	10000	--	NA	NA	NA	NA	0.14 J	NA
Pyrene	190000	2200	--	NA	NA	NA	NA	0.14 J	NA
Metals									
Lead	190000	450	--	191	270	258	305 BF	369	110

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BNA-1 B087A6 4.0 - 6.0 8/18/1992	BNA-10 B088A1 2.0 - 4.0 8/17/1992	BNA-10DL B088A1DL 2.0 - 4.0 8/17/1992	BNA-10RE B088A1RE 2.0 - 4.0 8/17/1992	BNA-11 B088A6 4.0 - 6.0 8/17/1992	BNA-12 B089A3 2.0 - 4.0 8/14/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.0019	ND (0.96)	NA	0.006 J	4.8 J	0.0094
Cumene	10000	2500	2500	NA	ND,J (0.012)	NA	0.005 J	3	0.014 J
1,2-Dibromoethane	4.2	0.005	0.0013	NA	ND,J (0.012)	NA	ND (0.012)	ND (1.9)	ND (0.014)
Ethyl Benzene	1000	70	46	0.015	ND (0.96)	NA	NA	22 J	0.0057
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.0015	ND (0.96)	NA	0.009	ND,J (1.1)	0.0055
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	0.025	5.2	NA	0.045	7.8 J	0.0077
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	3.6	3.6 J	NA	1	0.38 J
Benzo(a)anthracene	190000	340	--	NA	4.9	5.1 J	NA	ND (1)	0.53
Benzo(a)pyrene	190000	46	--	NA	3.8	4.8 J	NA	ND (1)	0.59
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	4.8	5.3 J	NA	0.72	0.63
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	1.6	2.1 J	NA	ND (1)	0.39 J
Naphthalene	77	25	25	ND,J (0.46)	0.68	0.69 J	NA	ND (1)	0.63
Phenanthrene	190000	10000	--	NA	9.2 J	9.4 J	NA	1.5	0.84
Pyrene	190000	2200	--	NA	NA	NA	NA	NA	NA
Metals									
Lead	190000	450	--	115	5200	NA	NA	576	421

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BNA-13 B089A4 2.0 - 4.0 8/14/1992	BNA-13 B089A5 6.0 - 8.0 8/14/1992	BNA-2 B087A5 4.0 - 6.0 8/18/1992	BNA-3 B087B1 4.0 - 6.0 8/21/1992	BNA-4 B087A4 2.0 - 4.0 8/18/1992	BNA-5 B087A3 2.0 - 4.0 8/18/1992
Volatile Organic Compounds									
Benzene	330	0.5	0.13	0.048 J	5.7	0.0037	ND (0.0013)	ND (0.0058)	0.012
Cumene	10000	2500	2500	NA	NA	NA	NA	ND (0.012)	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	ND (0.012)	NA
Ethyl Benzene	1000	70	46	0.14 J	11	0.0014	0.0019	0.0087	0.0069
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.016 J	ND (1.1)	ND (0.0012)	ND (0.0013)	ND (0.0058)	ND (0.0062)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	0.3 J	5.6	0.0021	0.0069	0.034	0.049
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	NA	NA	0.27 J	NA
Benzo(a)anthracene	190000	340	--	NA	NA	NA	NA	1.4 J	NA
Benzo(a)pyrene	190000	46	--	NA	NA	NA	NA	1.5 J	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	190000	230	--	NA	NA	NA	NA	1.4 J	NA
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	0.72 J	NA
Naphthalene	77	25	25	0.52	1.7	0.19 J	ND (0.42)	0.25 J	2.9 J
Phenanthrene	190000	10000	--	NA	NA	NA	NA	0.75 J	NA
Pyrene	190000	2200	--	NA	NA	NA	NA	NA	NA
Metals									
Lead	190000	450	--	388	1140	973	528	291	450

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	BNA-6 B087A1 2.0 - 4.0 8/18/1992	BNA-6 B087A2 6.0 - 8.0 8/18/1992	BNA-7 B088A3 2.0 - 4.0 8/17/1992	BNA-8 B088A4 2.0 - 4.0 8/17/1992	BNA-9 B088A2 2.0 - 4.0 8/17/1992	C-170 AOI7-C-170-2-4-070716 2.0 - 4.0 7/7/2016
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.0067)	0.0084	ND (1.2)	ND (1.1)	2.1 J	ND (0.008)
Cumene	10000	2500	2500	NA	NA	NA	NA	NA	ND (0.008)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	ND (0.008)
Ethyl Benzene	1000	70	46	ND (0.0067)	0.02	1.7	4.5	4.1 J	ND (0.008)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	ND (0.008)
Toluene	10000	100	44	ND (0.0067)	ND (0.0082)	ND (1.2)	ND (1.1)	ND,J (1)	0.003 J (0.008)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	0.003 J (0.008)
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	ND (0.008)
Xylenes (total)	9100	1000	990	0.027	0.07	4.8	1.5	7 J	0.002 J (0.008)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	NA	NA	NA	NA	0.94 J (1.3)
Benzo(a)anthracene	190000	340	--	NA	NA	NA	NA	NA	1.4 (1.3)
Benzo(a)pyrene	190000	46	--	NA	NA	NA	NA	NA	1.9 (1.3)
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA	NA	NA	2.4 (1.3)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	2 (1.3)
Chrysene	190000	230	--	NA	NA	NA	NA	NA	1.6 (1.3)
Fluorene	190000	3800	--	NA	NA	NA	NA	NA	0.49 J (1.3)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	0.48	0.18 J	0.69	0.78	ND,J (2.4)	9.7 (1.3)
Phenanthrene	190000	10000	--	NA	NA	NA	NA	NA	2.8 (1.3)
Pyrene	190000	2200	--	NA	NA	NA	NA	NA	1.9 (1.3)
Metals									
Lead	190000	450	--	204	62	513	540	887	343 (2.15)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	C-171 AOI7-C-171-2-4-070516 2.0 - 4.0 7/5/2016	C-172 AOI7-C-172-2-4-070616 2.0 - 4.0 7/6/2016	GP 1002-1002 PIPE-1 1002 PIPE-1 Unknown 4/7/2006	GP 1002-1002 PIPE-2 1002 PIPE-2 Unknown 4/7/2006	GP 1002-1002-1 1002-1 Unknown 4/7/2006	GP 1002-1002-2 1002-2 Unknown 4/7/2006
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.007)	ND (0.003)	ND (0.52)	0.16 (0.025)	ND (0.58)	1.4 (0.12)
Cumene	10000	2500	2500	ND (0.007)	ND (0.003)	ND (1.3)	0.064 J (0.063)	5.8 (0.3)	12 (0.31)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.007)	ND (0.003)	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.007)	ND (0.003)	ND (0.52)	0.047 J (0.025)	0.63 (0.12)	1.9 (0.12)
Methyl tert-butyl ether	9800	2	1.4	ND (0.007)	ND (0.003)	NA	NA	NA	NA
Toluene	10000	100	44	0.003 J (0.007)	ND (0.003)	ND (0.52)	0.12 (0.025)	0.6 (0.12)	1.2 (0.12)
1,2,4-Trimethylbenzene	5400	300	300	0.003 J (0.007)	ND (0.003)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	ND (0.007)	ND (0.003)	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	0.005 J (0.007)	ND (0.003)	ND (1.3)	0.27 (0.063)	2.2 (0.3)	6.8 (0.31)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	2.5 (1.3)	2.5 (0.11)	ND (0.014)	0.076 J (0.015)	9.1 (0.17)	5.5 (0.18)
Benzo(a)anthracene	190000	340	--	4.4 (1.3)	3.7 (0.11)	0.17 (0.032)	0.31 (0.033)	6.1 (0.39)	3 (0.39)
Benzo(a)pyrene	190000	46	--	4.3 (1.3)	4 (0.11)	1.2 (0.048)	1.2 (0.05)	5.8 (0.58)	2.8 J (0.59)
Benzo(b)fluoranthene	190000	170	--	4.8 (1.3)	4.5 (0.11)	0.83 (0.064)	1 (0.067)	4.8 (0.77)	2.5 J (0.79)
Benzo(g,h,i)perylene	190000	180	--	4.6 (1.3)	2.7 (0.11)	13 (0.064)	5.7 (0.067)	6 (0.77)	NA
Chrysene	190000	230	--	3.8 (1.3)	3.6 (0.11)	0.65 (0.048)	0.33 J (0.05)	11 (0.58)	6.6 (0.59)
Fluorene	190000	3800	--	1.1 J (1.3)	2 (0.11)	2 (0.096)	0.47 J (0.1)	22 (1.2)	20 (1.2)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	77	25	25	15 (1.3)	7.3 (0.11)	4 J (2.6)	2.5 (0.13)	14 (0.59)	30 (0.62)
Phenanthrene	190000	10000	--	4.8 (1.3)	7.5 (0.11)	0.16 J (0.048)	0.85 (0.05)	41 (0.58)	26 (0.59)
Pyrene	190000	2200	--	5.2 (1.3)	6.1 (0.11)	0.53 J (0.11)	1.3 (0.12)	14 (1.4)	34 (1.4)
Metals									
Lead	190000	450	--	200 (2.27)	151 (1.86)	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP 1002-1002-3 1002-3 Unknown 4/7/2006	GP 1100-1100-1 1100-1 Unknown 5/11/2006	GP 1100-1100-2 1100-2 Unknown 5/11/2006	GP 1100-1100-3 1100-3 Unknown 5/11/2006	GP 1100-1100-CV-1 1100-CV-1 Unknown 5/11/2006	GP 1100-1100-CV-1 1100CV-1 Unknown 6/19/2006
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.041)	1 (0.017)	0.097 J (0.017)	0.25 (0.021)	0.017 J (0.015)	NA
Cumene	10000	2500	2500	6.2 (0.13)	0.18 (0.035)	0.09 J (0.034)	0.076 J (0.042)	ND (0.03)	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	0.56 (0.052)	0.59 (0.035)	0.28 (0.034)	0.33 (0.042)	ND (0.03)	NA
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.23 (0.052)	ND (0.035)	ND (0.034)	ND (0.042)	ND (0.03)	NA
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	1.9 (0.13)	0.042 J (0.035)	0.13 J (0.034)	0.11 J (0.042)	ND (0.03)	NA
Semivolatile Organic Compounds									
Anthracene	190000	350	--	8.9 (0.16)	82 (5.3)	21 (0.26)	32 (0.55)	NA	5.6 (0.2)
Benzo(a)anthracene	190000	340	--	5.4 (0.36)	16 (0.53)	3.8 (0.26)	8.2 (0.55)	NA	10 (0.2)
Benzo(a)pyrene	190000	46	--	4.9 (0.54)	9.7 (0.53)	2.6 (0.26)	3.8 (0.55)	NA	6.8 (0.2)
Benzo(b)fluoranthene	190000	170	--	5.5 (0.72)	9.3 (0.53)	2.6 (0.26)	4 (0.55)	NA	7.9 (0.2)
Benzo(g,h,i)perylene	190000	180	--	5.5 (0.72)	4.2 (0.53)	1.9 (0.26)	2.4 J (0.55)	NA	3.8 (0.2)
Chrysene	190000	230	--	11 (0.54)	29 (0.53)	7.1 (0.26)	22 (0.55)	NA	16 (0.2)
Fluorene	190000	3800	--	20 (1.1)	210 (5.3)	64 (2.6)	160 (5.5)	NA	11 (0.2)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	3.2 (0.53)	1.5 (0.26)	1.8 J (0.55)	NA	2.7 (0.2)
Naphthalene	77	25	25	4.5 (0.26)	0.099 J (0.035)	0.35 (0.034)	1.2 (0.042)	0.18 (0.03)	NA
Phenanthrene	190000	10000	--	36 (0.54)	620 (5.3)	180 (2.6)	440 (5.5)	NA	22 (0.2)
Pyrene	190000	2200	--	16 (1.3)	60 (0.53)	17 (0.26)	41 (0.55)	NA	31 (0.41)
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP 1100-1100-CV-2 1100-CV-2 Unknown 5/11/2006	GP 1100-1100-CV-3 1100-CV-3 Unknown 5/11/2006	GP 1100-1100-ELBOW 1100-Elbow Unknown 5/11/2006	GP 1100-1100-JOINTS 1100-Joints Unknown 5/11/2006	GP-1002-1002 1002 Unknown 5/11/2006	GP-270-S-1 S-1 (4.0-4.5) 4.0 - 4.5 9/21/2009
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.016)	ND (0.015)	0.16 J (0.017)	0.33 (0.019)	ND (0.017)	ND (0.029)
Cumene	10000	2500	2500	ND (0.031)	ND (0.03)	ND (0.033)	2.6 (0.038)	0.52 (0.034)	ND (0.059)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.031)	ND (0.03)	ND (0.033)	1.3 (0.038)	ND (0.034)	ND (0.059)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	ND (0.031)	ND (0.03)	0.25 (0.033)	5.6 (0.038)	ND (0.034)	ND (0.059)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	ND (0.059)
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	ND (0.059)
Xylenes (total)	9100	1000	990	0.18 (0.031)	0.031 J (0.03)	0.12 J (0.033)	86 (0.38)	ND (0.034)	ND (0.059)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	41 (0.42)	0.84 J (0.41)	1.6 J (0.43)	7.4 (0.44)	4.8 (0.21)	0.43 (0.048)
Benzo(a)anthracene	190000	340	--	26 (0.42)	0.63 J (0.41)	0.89 J (0.43)	5 (0.44)	2.9 (0.21)	1.4 (0.048)
Benzo(a)pyrene	190000	46	--	13 (0.42)	0.79 J (0.41)	1.2 J (0.43)	2.3 (0.44)	2.3 (0.21)	1.7 (0.048)
Benzo(b)fluoranthene	190000	170	--	8.5 (0.42)	0.81 J (0.41)	0.87 J (0.43)	1.8 J (0.44)	2.6 (0.21)	2.2 (0.048)
Benzo(g,h,i)perylene	190000	180	--	6.2 (0.42)	3.4 (0.41)	1.8 J (0.43)	3.3 (0.44)	1.6 (0.21)	1.4 (0.048)
Chrysene	190000	230	--	41 (0.42)	2.3 (0.41)	3 (0.43)	8.2 (0.44)	3.6 (0.21)	1.4 (0.048)
Fluorene	190000	3800	--	59 (2.1)	ND (0.41)	1.1 (0.43)	16 (0.44)	6.3 (0.21)	0.21 J (0.048)
Indeno(1,2,3-cd)pyrene	190000	18000	--	4 (0.42)	1.5 J (0.41)	1.2 J (0.43)	1.6 J (0.44)	NA	1.2 (0.048)
Naphthalene	77	25	25	0.18 (0.031)	0.054 J (0.03)	0.048 J (0.033)	5.6 (0.038)	0.043 J (0.034)	0.18 J (0.059)
Phenanthrene	190000	10000	--	160 (2.1)	0.63 J (0.41)	2.6 (0.43)	31 (0.44)	13 (0.21)	1.1 (0.048)
Pyrene	190000	2200	--	78 (2.1)	1 J (0.41)	2.9 (0.43)	13 (0.44)	7.3 (0.21)	1.9 (0.048)
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	73.1 (0.858)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-270-S-10 S-10 (2.0-2.5) 2.0 - 2.5 10/6/2009	GP-270-S-12 S-12 (2.0-2.5) 2.0 - 2.5 10/6/2009	GP-270-S-2 S-2 (4.0-4.5) 4.0 - 4.5 9/21/2009	GP-270-S-3 S-3 (3.0-3.5) 3.0 - 3.5 9/21/2009	GP-270-S-4 S-4 (4.0-4.5) 4.0 - 4.5 9/22/2009	GP-270-S-5 S-5 (4.0-4.5) 4.0 - 4.5 9/22/2009
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.051)	0.061 J (0.049)	ND (0.025)	ND (0.041)	ND (0.035)	ND (0.031)
Cumene	10000	2500	2500	ND (0.1)	ND (0.097)	ND (0.051)	ND (0.082)	ND (0.07)	ND (0.061)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	0.12 J (0.1)	ND (0.097)	ND (0.051)	ND (0.082)	ND (0.07)	ND (0.061)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.7 (0.1)	0.94 (0.097)	ND (0.051)	0.41 J (0.082)	ND (0.07)	0.071 J (0.061)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.1)	0.12 J (0.097)	ND (0.051)	ND (0.082)	ND (0.07)	ND (0.061)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.1)	ND (0.097)	ND (0.051)	ND (0.082)	ND (0.07)	ND (0.061)
Xylenes (total)	9100	1000	990	0.25 J (0.1)	0.19 J (0.097)	ND (0.051)	ND (0.082)	ND (0.07)	ND (0.061)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	2 J (0.49)	0.78 J (0.48)	0.11 J (0.045)	4.7 (0.1)	0.23 J (0.048)	0.095 J (0.045)
Benzo(a)anthracene	190000	340	--	2.1 J (0.49)	1 J (0.48)	0.32 (0.045)	6.4 (0.1)	0.52 (0.048)	0.23 (0.045)
Benzo(a)pyrene	190000	46	--	3.6 (0.49)	1 J (0.48)	0.36 (0.045)	5.1 (0.1)	0.59 (0.048)	0.26 (0.045)
Benzo(b)fluoranthene	190000	170	--	3.5 (0.49)	1.4 J (0.48)	0.41 (0.045)	7 (0.1)	0.69 (0.048)	0.34 (0.045)
Benzo(g,h,i)perylene	190000	180	--	4.5 (0.49)	0.76 J (0.48)	0.29 (0.045)	3.4 (0.1)	0.47 (0.048)	0.23 (0.045)
Chrysene	190000	230	--	2.6 (0.49)	1.1 J (0.48)	0.34 (0.045)	7.1 (0.1)	0.61 (0.048)	0.26 (0.045)
Fluorene	190000	3800	--	0.96 J (0.49)	0.62 J (0.48)	0.062 J (0.045)	4.1 (0.1)	0.16 J (0.048)	0.047 J (0.045)
Indeno(1,2,3-cd)pyrene	190000	18000	--	3.5 (0.49)	0.62 J (0.48)	0.25 (0.045)	2.8 (0.1)	0.41 (0.048)	0.21 J (0.045)
Naphthalene	77	25	25	0.87 (0.1)	0.85 (0.097)	ND (0.051)	0.41 J (0.082)	ND (0.07)	0.13 J (0.061)
Phenanthrene	190000	10000	--	3.1 (0.49)	2.1 J (0.48)	0.27 (0.045)	11 (0.1)	1.1 (0.048)	0.21 J (0.045)
Pyrene	190000	2200	--	2.7 (0.49)	1.9 J (0.48)	0.44 (0.045)	15 (0.51)	0.93 (0.048)	0.33 (0.045)
Metals									
Lead	190000	450	--	447 (0.871)	235 (0.866)	47.1 (0.815)	264 (0.892)	20.7 (0.861)	28.9 (0.802)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-270-S-7 S-7 (2.5-3.0) 2.5 - 3.0 9/29/2009	GP-270-S-8 S-8 (2.0-2.5) 2.0 - 2.5 9/29/2009	GP-270-S-9 S-9 (2.5-3.0) 2.5 - 3.0 10/6/2009	GP-271-GP-2 GP-2 (8.5-9.0) 8.5 - 9.0 6/4/2002	GP-271-GP-4 GP-4 (3.5-4.0) 3.5 - 4.0 6/4/2002	GP-271-GP-5 GP-5 (3.5-4) 3.5 - 4.0 9/17/2002
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.044)	ND (0.044)	ND (0.057)	ND (0.41)	ND (0.35)	ND (0.39)
Cumene	10000	2500	2500	0.1 J (0.088)	ND (0.088)	ND (0.11)	NA	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND (0.088)	ND (0.088)	ND (0.11)	NA	NA	NA
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.28 J (0.088)	0.44 J (0.088)	0.99 (0.11)	NA	NA	NA
1,2,4-Trimethylbenzene	5400	300	300	ND (0.088)	ND (0.088)	0.12 J (0.11)	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	ND (0.088)	ND (0.088)	ND (0.11)	NA	NA	NA
Xylenes (total)	9100	1000	990	ND (0.088)	0.18 J (0.088)	0.17 J (0.11)	NA	NA	NA
Semivolatile Organic Compounds									
Anthracene	190000	350	--	4.1 (0.54)	2.1 J (0.53)	2.5 J (0.52)	ND (0.58)	0.39 J (0.56)	NA
Benzo(a)anthracene	190000	340	--	4.9 (0.54)	2.2 J (0.53)	3.5 (0.52)	ND (0.58)	0.44 J (0.56)	NA
Benzo(a)pyrene	190000	46	--	3.5 (0.54)	2.2 J (0.53)	2.9 (0.52)	ND (0.58)	0.41 J (0.56)	NA
Benzo(b)fluoranthene	190000	170	--	3.9 (0.54)	2.5 J (0.53)	3.1 (0.52)	ND (0.58)	0.46 J (0.56)	NA
Benzo(g,h,i)perylene	190000	180	--	1.6 J (0.54)	1.5 J (0.53)	1.7 J (0.52)	ND (0.58)	ND (0.56)	NA
Chrysene	190000	230	--	5.6 (0.54)	2.6 J (0.53)	3.7 (0.52)	ND (0.58)	0.58 (0.56)	NA
Fluorene	190000	3800	--	4.3 (0.54)	1.7 J (0.53)	2.2 J (0.52)	ND (0.58)	0.4 J (0.56)	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	1.4 J (0.54)	1.1 J (0.53)	1.3 J (0.52)	NA	NA	NA
Naphthalene	77	25	25	0.39 J (0.088)	0.71 (0.088)	0.66 (0.11)	0.92 (0.41)	0.72 (0.35)	NA
Phenanthrene	190000	10000	--	18 (0.54)	5.5 (0.53)	8.9 (0.52)	0.6 (0.58)	1.5 (0.56)	NA
Pyrene	190000	2200	--	13 (0.54)	5.2 (0.53)	8.5 (0.52)	0.57 J (0.58)	1.4 (0.56)	NA
Metals									
Lead	190000	450	--	387 (0.943)	443 (0.935)	328 (0.939)	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-271-GP-5 GP-5(3.5-4) 3.5 - 4.0 9/17/2002	GP-275-PER1 GP-275-PER1 3.0 - 3.5 5/24/2007	GP-275-PER2 GP-275-PER2 3.0 - 3.5 5/24/2007	GP-275-PER3 GP-275-PER3 3.0 - 3.5 5/24/2007	GP-275-PER4 GP-275-PER4 3.0 - 3.5 5/24/2007	GP-275-PER5 GP-275-PER5 3.0 - 3.5 5/24/2007
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.39)	ND,D (0.27)	ND,D (0.27)	ND,D (0.23)	ND,D (0.23)	ND,D (0.2)
Cumene	10000	2500	2500	NA	ND,D (0.27)	ND,D (0.27)	ND,D (0.23)	ND,D (0.23)	ND,D (0.2)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	NA	ND,D (0.27)	ND,D (0.27)	ND,D (0.23)	ND,D (0.23)	ND,D (0.2)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	NA	0.59 D (0.27)	0.71 D (0.27)	0.49 D (0.23)	0.5 D (0.23)	0.38 D (0.2)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds									
Anthracene	190000	350	--	NA	ND (0.58)	ND (0.56)	ND (0.55)	ND (0.51)	ND (0.5)
Benzo(a)anthracene	190000	340	--	NA	1.8 (0.58)	0.38 J (0.56)	0.81 (0.55)	1.1 (0.51)	1 (0.5)
Benzo(a)pyrene	190000	46	--	NA	2 (0.58)	0.4 J (0.56)	0.99 (0.55)	1.7 (0.51)	1.4 (0.5)
Benzo(b)fluoranthene	190000	170	--	NA	2.5 (0.58)	0.56 (0.56)	1.3 (0.55)	2.6 (0.51)	1.5 (0.5)
Benzo(g,h,i)perylene	190000	180	--	NA	1.1 (0.58)	ND (0.56)	0.39 J (0.55)	0.57 (0.51)	0.83 (0.5)
Chrysene	190000	230	--	NA	2 (0.58)	0.7 (0.56)	0.89 (0.55)	1.2 (0.51)	1.2 (0.5)
Fluorene	190000	3800	--	NA	ND (0.58)	ND (0.56)	ND (0.55)	ND (0.51)	ND (0.5)
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	1.1 (0.58)	ND (0.56)	0.36 J (0.55)	0.54 (0.51)	0.7 (0.5)
Naphthalene	77	25	25	NA	0.43 D (0.27)	0.6 D (0.27)	0.35 D (0.23)	0.37 D (0.23)	0.2 J,D (0.2)
Phenanthrene	190000	10000	--	NA	2.2 (0.58)	0.59 (0.56)	0.83 (0.55)	0.85 (0.51)	0.64 (0.5)
Pyrene	190000	2200	--	NA	2.9 (0.58)	1 (0.56)	1.8 (0.55)	1.4 (0.51)	1.4 (0.5)
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-275-PER6 GP-275-PER6 3.0 - 3.5 5/24/2007	GP-275-SUB-1 GP-275-SUB-1 5.0 - 5.5 9/4/2007	GP-275-SUB-2 GP-275-SUB-2 5.0 - 5.5 9/4/2007	GP-275-SUB-3 GP-275-SUB-3 5.0 - 5.5 9/4/2007	GP-277-PER1 GP-277-PER1 3.0 - 3.5 5/24/2007	GP-277-PER2 GP-277-PER2 3.0 - 3.5 5/24/2007
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND,D (0.34)	ND (0.0058)	ND (0.0054)	ND (0.0051)	1.1 D (0.16)	2.8 D (0.17)
Cumene	10000	2500	2500	ND,D (0.34)	ND (0.0058)	ND (0.0054)	ND (0.0051)	1.7 D (0.16)	2.4 D (0.17)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	ND,D (0.34)	ND (0.0058)	ND (0.0054)	ND (0.0051)	1.2 D (0.16)	1.9 D (0.17)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	ND,D (0.34)	ND (0.0058)	ND (0.0054)	ND (0.0051)	1.4 D (0.16)	2.6 D (0.17)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds									
Anthracene	190000	350	--	ND (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	ND (0.4)	ND (0.38)
Benzo(a)anthracene	190000	340	--	0.46 J (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.32 J (0.4)	ND (0.38)
Benzo(a)pyrene	190000	46	--	0.59 (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.31 J (0.4)	ND (0.38)
Benzo(b)fluoranthene	190000	170	--	0.6 (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.42 (0.4)	ND (0.38)
Benzo(g,h,i)perylene	190000	180	--	ND (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	ND (0.4)	ND (0.38)
Chrysene	190000	230	--	0.51 (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.41 (0.4)	ND (0.38)
Fluorene	190000	3800	--	ND (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	ND (0.4)	ND (0.38)
Indeno(1,2,3-cd)pyrene	190000	18000	--	0.43 J (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	ND (0.4)	ND (0.38)
Naphthalene	77	25	25	ND,D (0.34)	0.0022 J (0.0058)	0.002 J (0.0054)	0.0023 J (0.0051)	1 D (0.16)	0.87 D (0.17)
Phenanthrene	190000	10000	--	0.47 J (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.51 (0.4)	ND (0.38)
Pyrene	190000	2200	--	0.69 (0.48)	ND (0.38)	ND (0.36)	ND (0.34)	0.82 (0.4)	ND (0.38)
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-277-PER3 GP-277-PER3 3.0 - 3.5 5/24/2007	GP-277-PER4 GP-277-PER4 3.0 - 3.5 5/24/2007	GP-277-PER5 GP-277-PER5 3.0 - 3.5 5/24/2007	GP-277-PER6 GP-277-PER6 3.0 - 3.5 5/24/2007	GP-277-SUB1 GP-277-SUB1 5.0 - 5.5 5/24/2007	GP-277-SUB2 GP-277-SUB2 5.0 - 5.6 5/24/2007
Volatile Organic Compounds									
Benzene	330	0.5	0.13	3.3 D (0.24)	3 D (0.24)	8.6 D (0.23)	3.8 D (0.26)	0.79 D (0.25)	1.3 D (0.26)
Cumene	10000	2500	2500	2.7 D (0.24)	4.3 D (0.24)	2.5 D (0.23)	7.2 D (0.26)	0.9 D (0.25)	0.16 J,D (0.26)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA
Ethyl Benzene	1000	70	46	1.8 D (0.24)	4.1 D (0.24)	1.1 D (0.23)	12 D (0.26)	0.25 D (0.25)	0.53 D (0.26)
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA	NA	NA	NA
Toluene	10000	100	44	2.7 D (0.24)	4 D (0.24)	3.1 D (0.23)	4.3 D (0.26)	0.37 D (0.25)	0.79 D (0.26)
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds									
Anthracene	190000	350	--	ND (0.55)	2.7 (0.54)	ND,D (5.3)	ND,D (5.6)	ND,D (5.5)	ND (0.54)
Benzo(a)anthracene	190000	340	--	0.33 J (0.55)	ND (0.54)	ND,D (5.3)	ND,D (5.6)	ND,D (5.5)	ND (0.54)
Benzo(a)pyrene	190000	46	--	0.35 J (0.55)	ND (0.54)	ND,D (5.3)	3.9 J,D (5.6)	ND,D (5.5)	ND (0.54)
Benzo(b)fluoranthene	190000	170	--	0.49 J (0.55)	0.48 J (0.54)	ND,D (5.3)	3.5 J,D (5.6)	ND,D (5.5)	0.55 (0.54)
Benzo(g,h,i)perylene	190000	180	--	ND (0.55)	ND (0.54)	ND,D (5.3)	4.4 J,D (5.6)	ND,D (5.5)	ND (0.54)
Chrysene	190000	230	--	0.37 J (0.55)	0.44 J (0.54)	5.5 D (5.3)	ND,D (5.6)	ND,D (5.5)	ND (0.54)
Fluorene	190000	3800	--	ND (0.55)	1.1 (0.54)	3.7 J,D (5.3)	ND,D (5.6)	ND,D (5.5)	ND (0.54)
Indeno(1,2,3-cd)pyrene	190000	18000	--	ND (0.55)	ND (0.54)	ND,D (5.3)	3.1 J,D (5.6)	ND,D (5.5)	ND (0.54)
Naphthalene	77	25	25	0.48 D (0.24)	1.5 D (0.24)	0.57 D (0.23)	8.2 D (0.26)	0.44 D (0.25)	0.45 D (0.26)
Phenanthrene	190000	10000	--	ND (0.55)	2.7 (0.54)	11 D (5.3)	ND,D (5.6)	ND,D (5.5)	0.62 (0.54)
Pyrene	190000	2200	--	0.46 J (0.55)	0.4 J (0.54)	4.9 J,D (5.3)	ND,D (5.6)	ND,D (5.5)	0.53 J (0.54)
Metals									
Lead	190000	450	--	NA	NA	NA	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP-277-SUB3 GP-277-SUB3 5.0 - 5.5 5/24/2007	GP280-01 GP280-01-20160829-3.0 3 8/29/2016	GP280-02 GP280-02-20160829-3.0 3 8/29/2016	GP280-03 GP280-03-20160829-2.0 2 8/29/2016	GP280-03 GP280-03-3.0-20170202 3 2/2/2017	GP280-04 GP280-04-20160829-3.0 3 8/29/2016
Volatile Organic Compounds									
Benzene	330	0.5	0.13	2.1 D (0.25)	ND (0.008)	ND (0.007)	0.002 J (0.006)	NA	0.085 J (0.45)
Cumene	10000	2500	2500	0.92 D (0.25)	ND (0.008)	ND (0.007)	ND (0.006)	NA	ND (0.45)
1,2-Dibromoethane	4.2	0.005	0.0013	NA	ND (0.00074)	ND (0.00064)	ND (0.00059)	NA	ND (0.00068)
Ethyl Benzene	1000	70	46	0.52 D (0.25)	ND (0.008)	ND (0.007)	ND (0.006)	NA	0.1 J (0.45)
Methyl tert-butyl ether	9800	2	1.4	NA	ND (0.008)	ND (0.007)	ND (0.006)	NA	ND (0.34)
Toluene	10000	100	44	1 D (0.25)	ND (0.008)	ND (0.007)	0.001 J (0.006)	NA	1.4 (0.45)
1,2,4-Trimethylbenzene	5400	300	300	NA	0.002 J (0.008)	ND (0.007)	ND (0.006)	NA	0.18 J (0.45)
1,3,5-Trimethylbenzene	5400	93	93	NA	ND (0.008)	ND (0.007)	ND (0.006)	NA	ND (0.45)
Xylenes (total)	9100	1000	990	NA	ND (0.008)	ND (0.007)	ND (0.006)	NA	0.24 J (0.45)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	ND (0.54)	2.8 (0.26)	2.7 (0.22)	0.24 (0.21)	NA	4.5 (0.24)
Benzo(a)anthracene	190000	340	--	ND (0.54)	1.9 (0.26)	1.9 (0.22)	0.43 (0.21)	NA	2.9 (0.24)
Benzo(a)pyrene	190000	46	--	ND (0.54)	2.5 (0.26)	2 (0.22)	0.52 (0.21)	NA	2.3 (0.24)
Benzo(b)fluoranthene	190000	170	--	ND (0.54)	2.4 (0.26)	2.4 (0.22)	0.61 (0.21)	NA	2.9 (0.24)
Benzo(g,h,i)perylene	190000	180	--	ND (0.54)	2.6 (0.26)	1.9 (0.22)	0.47 (0.21)	NA	1.5 (0.24)
Chrysene	190000	230	--	ND (0.54)	2.1 (0.26)	2.1 (0.22)	0.77 (0.21)	NA	3.6 (0.24)
Fluorene	190000	3800	--	ND (0.54)	1.5 (0.26)	1.8 (0.22)	0.1 J (0.21)	NA	3.3 (0.24)
Indeno(1,2,3-cd)pyrene	190000	18000	--	ND (0.54)	1.8 (0.26)	1.4 (0.22)	0.38 (0.21)	NA	1.1 (0.24)
Naphthalene	77	25	25	0.55 D (0.25)	0.003 J (0.008)	ND (0.007)	ND (0.006)	NA	1.4 (0.45)
Phenanthrene	190000	10000	--	ND (0.54)	5.8 (0.26)	6.9 (0.22)	0.64 (0.21)	NA	11 (0.24)
Pyrene	190000	2200	--	ND (0.54)	2.6 (0.26)	3.3 (0.22)	0.74 (0.21)	NA	7.5 (0.24)
Metals									
Lead	190000	450	--	NA	286 (1.99)	254 (1.87)	214 (6.37)	NA	172 (1.87)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP280-05 GP280-05-20160829-3.0 3 8/29/2016	GP280-06 GP280-06-20160829-3.0 3 8/29/2016	GP280-07 GP280-07-20160829-3.0 3 8/29/2016	GP280-10 GP280-10-20160829-2.0 2 8/29/2016	GP280-11 GP280-11-20160829-5.0 5 8/29/2016	GP280-12 GP280-12-20160829-2.0 2 8/29/2016
Volatile Organic Compounds									
Benzene	330	0.5	0.13	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Cumene	10000	2500	2500	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
1,2-Dibromoethane	4.2	0.005	0.0013	ND (0.00073)	ND (0.00092)	ND (0.00056)	ND (0.00072)	ND (0.00075)	ND (0.006)
Ethyl Benzene	1000	70	46	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Methyl tert-butyl ether	9800	2	1.4	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Toluene	10000	100	44	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
1,2,4-Trimethylbenzene	5400	300	300	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
1,3,5-Trimethylbenzene	5400	93	93	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Xylenes (total)	9100	1000	990	ND (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Semivolatile Organic Compounds									
Anthracene	190000	350	--	2.1 (0.26)	1.6 (0.32)	0.021 (0.019)	0.94 (0.24)	2.1 (0.26)	0.86 (0.21)
Benzo(a)anthracene	190000	340	--	1.4 (0.26)	1.5 (0.32)	0.02 (0.019)	1.2 (0.24)	1.4 (0.26)	0.79 (0.21)
Benzo(a)pyrene	190000	46	--	1.1 (0.26)	1.3 (0.32)	0.021 (0.019)	1.3 (0.24)	1.1 (0.26)	0.75 (0.21)
Benzo(b)fluoranthene	190000	170	--	1.6 (0.26)	1.8 (0.32)	0.03 (0.019)	1.6 (0.24)	1.5 (0.26)	0.82 (0.21)
Benzo(g,h,i)perylene	190000	180	--	1.2 (0.26)	1.2 (0.32)	0.022 (0.019)	1.1 (0.24)	1.1 (0.26)	1 (0.21)
Chrysene	190000	230	--	1.7 (0.26)	1.9 (0.32)	0.046 (0.019)	1.3 (0.24)	1.6 (0.26)	1.3 (0.21)
Fluorene	190000	3800	--	1.3 (0.26)	0.93 (0.32)	0.0077 J (0.019)	0.45 (0.24)	1.3 (0.26)	0.4 (0.21)
Indeno(1,2,3-cd)pyrene	190000	18000	--	0.94 (0.26)	1 (0.32)	0.015 J (0.019)	0.96 (0.24)	0.82 (0.26)	0.63 (0.21)
Naphthalene	77	25	25	0.004 J (0.009)	ND (0.01)	ND (0.006)	ND (0.006)	ND (0.008)	ND (0.006)
Phenanthrene	190000	10000	--	6.7 (0.26)	5.2 (0.32)	0.05 (0.019)	2.8 (0.24)	6.1 (0.26)	2.6 (0.21)
Pyrene	190000	2200	--	2.3 (0.26)	2.4 (0.32)	0.055 (0.019)	1.7 (0.24)	2.5 (0.26)	1.1 (0.21)
Metals									
Lead	190000	450	--	327 (1.88)	397 (2.37)	10.9 (1.28)	201 (1.49)	344 (1.98)	209 (1.55)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H3

Summary of Historical Subsurface Soil Analytical Results

Tank Group 06

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

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 - Non-Residential	PADEP Non-Residential Soil Vapor Intrusion Screening Value	GP280-13 GP280-13-2.0-20170202 2 2/2/2017	GP280-14 GP280-14-2.0-20170202 2 2/2/2017	GP280-15 GP280-15-2.0-20170202 2 2/2/2017
Volatile Organic Compounds						
Benzene	330	0.5	0.13	NA	NA	NA
Cumene	10000	2500	2500	NA	NA	NA
1,2-Dibromoethane	4.2	0.005	0.0013	NA	NA	NA
Ethyl Benzene	1000	70	46	NA	NA	NA
Methyl tert-butyl ether	9800	2	1.4	NA	NA	NA
Toluene	10000	100	44	NA	NA	NA
1,2,4-Trimethylbenzene	5400	300	300	NA	NA	NA
1,3,5-Trimethylbenzene	5400	93	93	NA	NA	NA
Xylenes (total)	9100	1000	990	NA	NA	NA
Semivolatile Organic Compounds						
Anthracene	190000	350	--	NA	NA	NA
Benzo(a)anthracene	190000	340	--	NA	NA	NA
Benzo(a)pyrene	190000	46	--	NA	NA	NA
Benzo(b)fluoranthene	190000	170	--	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA
Chrysene	190000	230	--	NA	NA	NA
Fluorene	190000	3800	--	NA	NA	NA
Indeno(1,2,3-cd)pyrene	190000	18000	--	NA	NA	NA
Naphthalene	77	25	25	NA	NA	NA
Phenanthrene	190000	10000	--	NA	NA	NA
Pyrene	190000	2200	--	NA	NA	NA
Metals						
Lead	190000	450	--	NA	NA	NA

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- Only compounds with at least one detection are shown.
- B, BF, D, IQ, L are unknown qualifiers.
- Underlined concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
- Boldfaced concentrations exceed the PADEP Soil to Ground Water MSCs -- Used Aquifer -- TDS <= 2500 -- Non-Residential.
- Gray-shaded concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	B-45 B-45_010713 1/7/2013	B-45 GW-11109613-B45-05-05-16-RM-014 5/5/2016	C-104 C-104-20170523 5/23/2017	C-104 C-104_20180626 6/26/2018	C-105 C-105_20220429 4/29/2022
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)
Cumene	3.5	ND (0.002)	ND (0.0005)	ND (0.002)	ND (0.001)	ND (0.001)
Ethyl Benzene	0.7	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.0005)	ND (0.002)	ND (0.001)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.0005)	ND (0.002)	ND (0.001)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.003)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	ND (0.0001)	0.000042 J (0.00001)	0.0006 (0.0005)	0.00048 (0.00005)	0.0000772 JB (0.000087)
Benzo(a)anthracene	0.0039	ND (0.0001)	0.000021 J (0.00001)	0.0002 J (0.0005)	0.0000909 (0.00005)	0.000138 B (0.000043)
Benzo(a)pyrene	0.0002	ND (0.0001)	0.00003 J (0.00001)	0.0002 J (0.0005)	ND (0.00005)	ND (0.000043)
Benzo(b)fluoranthene	0.0012	ND (0.0001)	0.000043 J (0.00001)	ND (0.0005)	ND (0.00005)	0.0000274 J (0.000043)
Benzo(g,h,i)perylene	0.00026	ND (0.0001)	0.000033 J (0.00001)	ND (0.0005)	ND (0.00005)	ND (0.000087)
Chrysene	0.0019	ND (0.0001)	0.00005 J (0.00001)	0.0003 J (0.0005)	0.000103 (0.00005)	ND (0.000087)
Fluorene	1.9	ND (0.0001)	0.000042 J (0.00001)	0.005 (0.0005)	0.00339 (0.00005)	0.000126 B (0.000087)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	ND (0.000087)
Naphthalene	0.1	ND (0.0001)	ND (0.000031)	ND (0.0005)	ND (0.00025)	ND (0.000087)
Phenanthrene	1.1	ND (0.0001)	0.000065 (0.000031)	0.001 (0.0005)	0.000285 (0.00005)	0.0000454 JB (0.000087)
Pyrene	0.13	0.000115 (0.0001)	0.000085 (0.00001)	0.002 (0.0005)	0.00156 (0.00005)	0.000188 (0.000087)
Metals						
Lead	0.005	ND (0.003)	0.00014 J (0.00013)	ND (0.001)	ND (0.002)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-105 C-105_20220628 6/28/2022	C-106 C-106_SL_20210510 5/10/2021	C-106 C-106_SL_20220511 5/11/2022	C-108 C-108_071610 7/16/2010	C-108 GW-11109614-C-108-072816-JM-034 7/28/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	NA	0.0011 SL (0.001)	ND,SL (0.0005)	ND (0.001)	ND (0.001)
Cumene	3.5	NA	0.00044 J,SL (0.005)	ND,SL (0.001)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	NA	ND,SL (0.001)	ND,SL (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	NA	ND,SL (0.001)	ND,SL (0.001)	ND (0.001)	ND (0.001)
Toluene	1	NA	0.00068 J,SL (0.001)	ND,SL (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	NA	ND,SL (0.005)	ND,SL (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	NA	ND,SL (0.005)	ND,SL (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	NA	ND,SL (0.006)	ND,SL (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.0000742 J (0.00008)	0.00023 J,SL (0.00051)	0.000283 SL (0.000077)	NA	0.000073 (0.00005)
Benzo(a)anthracene	0.0039	ND (0.00004)	ND,SL (0.00051)	0.00012 B,SL (0.000038)	NA	0.000018 J (0.00005)
Benzo(a)pyrene	0.0002	ND (0.00004)	ND,SL (0.00051)	0.0000728 B,SL (0.000038)	NA	ND (0.00005)
Benzo(b)fluoranthene	0.0012	ND (0.00004)	ND,SL (0.00051)	0.000113 B,SL (0.000038)	NA	0.000012 J (0.00005)
Benzo(g,h,i)perylene	0.00026	ND (0.00008)	ND,SL (0.00051)	0.0000426 J,SL (0.000077)	NA	ND (0.00005)
Chrysene	0.0019	ND (0.00008)	ND,SL (0.00051)	0.000126 SL (0.000077)	ND (0.005)	0.000017 J (0.00005)
Fluorene	1.9	0.000127 (0.00008)	0.00062 SL (0.00051)	0.000864 SL (0.000077)	ND (0.005)	0.000076 (0.00005)
Indeno(1,2,3-cd)pyrene	0.0023	ND (0.00008)	NA	NA	NA	NA
Naphthalene	0.1	ND (0.00008)	ND,SL (0.00051)	ND,SL (0.000077)	ND (0.005)	0.000054 J (0.00006)
Phenanthrene	1.1	0.0000769 J (0.00008)	0.00079 SL (0.00051)	0.0013 SL (0.000077)	ND (0.005)	ND (0.00006)
Pyrene	0.13	0.000178 (0.00008)	0.00042 J,SL (0.00051)	0.000481 SL (0.000077)	ND (0.005)	0.000039 J (0.00005)
Metals						
Lead	0.005	NA	ND,SL (0.00052)	ND,SL (0.001)	ND (0.000001)	0.00017 J (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-109 C-109_011310 1/13/2010	C-109 C-109_071310 7/13/2010	C-110 C-110_011310 1/13/2010	C-110 C-110_072710 7/27/2010	C-111 C-111_011310 1/13/2010
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	<u>0.14</u> (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.06 (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.003 (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.017 (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.002 J (0.002)
Xylenes (total)	10	0.0007 J (0.001)	ND (0.001)	0.0006 J (0.001)	ND (0.001)	0.013 (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	NA	NA	NA
Chrysene	0.0019	<u>0.003 J (0.005)</u>	0.001 J (0.005)	ND (0.005)	<u>0.002 J (0.005)</u>	<u>0.004 J (0.005)</u>
Fluorene	1.9	0.003 J (0.005)	0.002 J (0.005)	0.002 J (0.005)	0.002 J (0.005)	0.004 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.002 J (0.005)	ND (0.005)	ND (0.005)	0.002 J (0.005)	0.003 J (0.005)
Phenanthrene	1.1	0.003 J (0.005)	0.002 J (0.005)	0.004 J (0.005)	0.003 J (0.005)	0.009 (0.005)
Pyrene	0.13	0.008 (0.005)	0.004 J (0.005)	0.003 J (0.005)	0.004 J (0.005)	0.008 (0.005)
Metals						
Lead	0.005	0.000059 J (0.000001)	ND (0.000001)	ND (0.000001)	ND (0.000001)	0.00089 J (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-111 C-111_072710 7/27/2010	C-112 C-112_071410 7/14/2010	C-112 GW-11109614-C-112-072916-JM-040 7/29/2016	C-113 C-113_071310 7/13/2010	C-113 GW-11109614-C-113-072116-JM-007 7/21/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	<u>0.089 (0.001)</u>	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	0.13 (0.002)	0.001 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	0.015 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	0.003 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	0.012 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	0.00013 (0.000051)	NA	0.000061 (0.000051)
Benzo(a)anthracene	0.0039	NA	NA	0.000098 (0.000051)	NA	0.000034 J (0.000051)
Benzo(a)pyrene	0.0002	NA	NA	0.000069 (0.000051)	NA	0.000017 J (0.000051)
Benzo(b)fluoranthene	0.0012	NA	NA	0.000078 (0.000051)	NA	0.000018 J (0.000051)
Benzo(g,h,i)perylene	0.00026	NA	NA	0.000022 J (0.000051)	NA	0.000011 J (0.000051)
Chrysene	0.0019	<u>0.003 J (0.005)</u>	<u>0.003 J (0.005)</u>	0.0001 (0.000051)	ND (0.005)	0.000034 J (0.000051)
Fluorene	1.9	0.002 J (0.005)	0.013 (0.005)	0.00068 (0.000051)	0.003 J (0.005)	0.000057 (0.000051)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.002 J (0.005)	0.001 J (0.005)	0.000079 (0.000061)	ND (0.005)	ND (0.000061)
Phenanthrene	1.1	0.007 (0.005)	0.019 (0.005)	0.00025 (0.000061)	0.004 J (0.005)	0.00017 (0.000061)
Pyrene	0.13	0.007 (0.005)	0.009 (0.005)	0.00038 (0.000051)	0.003 J (0.005)	0.00015 (0.000051)
Metals						
Lead	0.005	0.0013 (0.000001)	ND (0.000001)	ND (0.001)	ND (0.000001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-114 C-114_011410 1/14/2010	C-114 C-114_071410 7/14/2010	C-127 C-127-20170523 5/23/2017	C-127 C-127_20180626 6/26/2018	C-130 C-130_071210 7/12/2010
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	0.0006 J (0.002)	0.0007 J (0.002)	0.003 (0.002)	0.00137 (0.001)	ND (0.002)
Ethyl Benzene	0.7	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	0.016 (0.001)	0.005 (0.001)	0.00411 (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	0.0009 J (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.002)
Xylenes (total)	10	0.003 (0.001)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	0.0005 J (0.0005)	0.000456 (0.00005)	NA
Benzo(a)anthracene	0.0039	NA	NA	ND (0.0005)	0.0000591 (0.00005)	NA
Benzo(a)pyrene	0.0002	NA	NA	ND (0.0005)	ND (0.00005)	NA
Benzo(b)fluoranthene	0.0012	NA	NA	ND (0.0005)	ND (0.00005)	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	ND (0.0005)	ND (0.00005)	NA
Chrysene	0.0019	ND (0.005)	<u>0.002 J (0.005)</u>	ND (0.0005)	0.000088 (0.00005)	ND (0.005)
Fluorene	1.9	ND (0.005)	0.005 (0.005)	0.003 (0.0005)	0.00314 (0.00005)	ND (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.005)	0.002 J (0.005)	ND (0.0005)	ND (0.00025)	ND (0.005)
Phenanthrene	1.1	ND (0.005)	0.005 J (0.005)	0.0001 J (0.0005)	ND (0.00005)	ND (0.005)
Pyrene	0.13	ND (0.005)	0.005 (0.005)	0.0009 (0.0005)	0.00107 (0.00005)	ND (0.005)
Metals						
Lead	0.005	0.00015 J (0.000001)	ND (0.000001)	ND (0.001)	ND (0.002)	ND (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-130 GW-11109614-C-130-072516-JM-012 7/25/2016	C-131 GW-11109614-C-131-072616-JM-016 7/26/2016	C-131 GW-11109614-C131-081916-AC-04 8/19/2016	C-132 C-132_071510 7/15/2010	C-132 GW-11109614-C-132-072516-JM-010 7/25/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.002)	0.028 (0.002)	0.0007 J (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	0.0007 J (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	0.013 (0.001)	0.011 (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	0.0007 J (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	ND (0.001)	0.001 (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	ND (0.00005)	0.0014 (0.00005)	0.00032 (0.00005)	NA	0.000082 (0.00005)
Benzo(a)anthracene	0.0039	ND (0.00005)	0.00061 (0.00005)	0.000034 J (0.00005)	NA	0.000061 (0.00005)
Benzo(a)pyrene	0.0002	ND (0.00005)	<u>0.00043 (0.00005)</u>	ND (0.00005)	NA	0.000031 J (0.00005)
Benzo(b)fluoranthene	0.0012	0.000014 J (0.00005)	0.00042 (0.00005)	0.000012 J (0.00005)	NA	0.000044 J (0.00005)
Benzo(g,h,i)perylene	0.00026	ND (0.00005)	0.00023 (0.00005)	ND (0.00005)	NA	0.000024 J (0.00005)
Chrysene	0.0019	0.000012 J (0.00005)	0.00067 (0.00005)	0.000044 J (0.00005)	ND (0.005)	0.000077 (0.00005)
Fluorene	1.9	ND (0.00005)	0.0039 (0.00005)	0.00067 (0.00005)	0.003 J (0.005)	0.000074 (0.00005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.00006)	0.00065 (0.00006)	0.000072 (0.00006)	ND (0.005)	0.000038 J (0.00006)
Phenanthrene	1.1	ND (0.00006)	0.00063 (0.00006)	0.00015 (0.00006)	ND (0.005)	0.000041 J (0.00006)
Pyrene	0.13	0.000011 J (0.00005)	0.0021 (0.00005)	0.00031 (0.00005)	0.002 J (0.005)	0.000059 (0.00005)
Metals						
Lead	0.005	ND (0.001)	ND (0.001)	ND (0.001)	0.00011 J (0.000001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-133 C-133_071510 7/15/2010	C-134D C-134D 7/22/2021	C-134D C-134D_20220422 4/22/2022	GW-11109614-C-136-072916-JM-036 7/29/2016	C-137 C-137_071510 7/15/2010
Water Quality						
pH [SU]	--	NA	6.57	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	NA	ND (0.0005)	ND (0.001)	0.0008 J (0.001)
Cumene	3.5	0.0007 J (0.002)	NA	ND (0.001)	0.0005 J (0.002)	0.004 (0.002)
Ethyl Benzene	0.7	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	NA	0.00092 J (0.001)	ND (0.001)	0.001 (0.001)
Toluene	1	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	ND (0.000067)	0.00008 (0.000051)	NA
Benzo(a)anthracene	0.0039	NA	NA	ND (0.000033)	0.000058 (0.000051)	NA
Benzo(a)pyrene	0.0002	NA	NA	ND (0.000033)	0.000026 J (0.000051)	NA
Benzo(b)fluoranthene	0.0012	NA	NA	ND (0.000033)	0.000029 J (0.000051)	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	ND (0.000067)	ND (0.000051)	NA
Chrysene	0.0019	<u>0.008 (0.005)</u>	NA	ND (0.000067)	0.000063 (0.000051)	ND (0.005)
Fluorene	1.9	0.008 (0.005)	NA	ND (0.000067)	0.00025 (0.000051)	0.001 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.008 (0.005)	NA	ND (0.000067)	ND (0.000061)	ND (0.005)
Phenanthrene	1.1	0.017 (0.005)	NA	0.0000559 J (0.000067)	ND (0.000061)	0.005 J (0.005)
Pyrene	0.13	0.017 (0.005)	NA	0.0000475 J (0.000067)	0.00033 (0.000051)	ND (0.005)
Metals						
Lead	0.005	0.00014 J (0.000001)	NA	ND (0.001)	ND (0.001)	ND (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-138 C-138_071610 7/16/2010	C-140 C-140_072010 7/20/2010	C-140 GW-11109614-C-140-072616-AC-017 7/26/2016	C-142 C-142_072010 7/20/2010	C-142 GW-11109614-C-142-072816-JM-030 7/28/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.001)
Cumene	3.5	ND (0.002)	0.002 (0.002)	ND (0.002)	0.078 (0.02)	0.13 (0.002)
Ethyl Benzene	0.7	ND (0.001)	0.001 (0.001)	ND (0.001)	ND (0.01)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.01)	0.0006 J (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	0.003 (0.002)	ND (0.002)	ND (0.02)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	0.0008 J (0.002)	ND (0.002)	ND (0.02)	ND (0.002)
Xylenes (total)	10	ND (0.001)	0.002 (0.001)	ND (0.001)	ND (0.01)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	0.00015 (0.000051)	NA	0.00061 (0.000051)
Benzo(a)anthracene	0.0039	NA	NA	0.000037 J (0.000051)	NA	0.00017 (0.000051)
Benzo(a)pyrene	0.0002	NA	NA	0.000026 J (0.000051)	NA	0.00014 (0.000051)
Benzo(b)fluoranthene	0.0012	NA	NA	0.000031 J (0.000051)	NA	0.000092 (0.000051)
Benzo(g,h,i)perylene	0.00026	NA	NA	0.00002 J (0.000051)	NA	0.000064 (0.000051)
Chrysene	0.0019	ND (0.005)	<u>0.002 J (0.005)</u>	0.000035 J (0.000051)	<u>0.064 (0.052)</u>	0.00033 (0.000051)
Fluorene	1.9	ND (0.005)	0.004 J (0.005)	0.0013 (0.000051)	0.039 J (0.052)	0.0012 (0.000051)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.005)	ND (0.005)	0.00034 (0.000062)	0.032 J (0.052)	0.00027 (0.000061)
Phenanthrene	1.1	ND (0.005)	ND (0.005)	0.0003 (0.000062)	0.14 (0.052)	0.00038 (0.000061)
Pyrene	0.13	ND (0.005)	0.006 (0.005)	0.00035 (0.000051)	0.11 (0.052)	0.00038 (0.000051)
Metals						
Lead	0.005	0.001 (0.000001)	0.000098 J (0.000001)	0.00053 J (0.001)	0.00096 J (0.000001)	0.00017 J (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-144D C-144D 7/22/2021	C-144D C-144D_20220511 5/11/2022	C-145 C-145_01132012 1/13/2012	C-145 GW-11109614-C-145-072716-AC-025 7/27/2016	C-146 C-146_20191107 11/7/2019
Water Quality						
pH [SU]	--	6.27	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	NA	ND (0.0005)	ND (0.001)	ND (0.001)	0.0004 J (0.001)
Cumene	3.5	NA	ND (0.001)	ND (0.002)	ND (0.002)	0.014 (0.005)
Ethyl Benzene	0.7	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	NA	ND (0.001)	0.001 (0.001)	ND (0.001)	0.0002 J (0.001)
Toluene	1	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)	ND (0.002)	0.0003 J (0.005)
1,3,5-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.005)
Xylenes (total)	10	NA	ND (0.001)	0.003 (0.001)	ND (0.001)	ND (0.003)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	ND (0.000077)	NA	0.00045 (0.000051)	ND (0.0005)
Benzo(a)anthracene	0.0039	NA	ND (0.000038)	NA	0.00053 (0.000051)	ND (0.0005)
Benzo(a)pyrene	0.0002	NA	ND (0.000038)	NA	<u>0.0004 (0.000051)</u>	ND (0.0005)
Benzo(b)fluoranthene	0.0012	NA	ND (0.000038)	NA	0.00045 (0.000051)	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	NA	ND (0.000077)	NA	0.00018 (0.000051)	ND (0.0005)
Chrysene	0.0019	NA	ND (0.000077)	0.0007 (0.0005)	0.00068 (0.000051)	ND (0.0005)
Fluorene	1.9	NA	ND (0.000077)	ND (0.0005)	0.00022 (0.000051)	0.002 (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	NA	0.0000484 J (0.000077)	ND (0.0005)	0.00053 (0.000061)	ND (0.0005)
Phenanthrene	1.1	NA	0.0000455 J (0.000077)	ND (0.0005)	0.00046 (0.000061)	ND (0.0005)
Pyrene	0.13	NA	ND (0.000077)	0.001 (0.0005)	0.0015 (0.000051)	0.0007 (0.0005)
Metals						
Lead	0.005	NA	ND (0.001)	ND (0.001)	0.00019 J (0.001)	0.0028 (0.0005)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-146 C-146_SL_20220511 5/11/2022	C-150 GW-11109614-C-150-080116-JM-039 8/1/2016	C-150 C-150_SL_20210514 5/14/2021	C-152 GW-11109614-C-152-072916-AC-033 7/29/2016	C-152 GW-11109614-C152-081916-AC-05 8/19/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND,SL (0.0005)	ND (0.001)	ND,SL (0.001)	<u>0.051</u> (0.001)	0.002 (0.001)
Cumene	3.5	0.0091 SL (0.001)	0.059 (0.002)	0.0025 J,SL (0.005)	0.015 (0.002)	0.003 (0.002)
Ethyl Benzene	0.7	ND,SL (0.001)	0.016 (0.001)	0.00091 J,SL (0.001)	0.003 (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND,SL (0.001)	ND (0.001)	ND,SL (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND,SL (0.001)	0.003 (0.001)	0.0004 J,SL (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND,SL (0.002)	0.13 (0.002)	0.0022 J,SL (0.005)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND,SL (0.002)	0.048 (0.002)	0.0028 J,SL (0.005)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND,SL (0.001)	0.19 (0.001)	ND,SL (0.006)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.000378 J,SL (0.00039)	0.02 (0.0005)	0.00023 J,SL (0.00063)	0.00018 (0.00005)	0.000079 (0.000051)
Benzo(a)anthracene	0.0039	ND,SL (0.0002)	<u>0.01</u> (0.0005)	ND,SL (0.00063)	0.000078 (0.00005)	0.000037 J (0.000051)
Benzo(a)pyrene	0.0002	ND,SL (0.0002)	<u>0.0056</u> (0.0005)	ND,SL (0.00063)	0.000048 J (0.00005)	0.00003 J (0.000051)
Benzo(b)fluoranthene	0.0012	ND,SL (0.0002)	<u>0.0068</u> (0.0005)	ND,SL (0.00063)	0.00006 (0.00005)	0.000031 J (0.000051)
Benzo(g,h,i)perylene	0.00026	ND,SL (0.00039)	<u>0.0013</u> (0.0005)	ND,SL (0.00063)	0.000021 J (0.00005)	0.000018 J (0.000051)
Chrysene	0.0019	ND,SL (0.00039)	<u>0.017</u> (0.0005)	ND,SL (0.00063)	0.00012 (0.00005)	0.000061 (0.000051)
Fluorene	1.9	0.00145 SL (0.00039)	0.045 (0.0005)	0.0013 SL (0.00063)	0.00051 (0.00005)	0.00025 (0.000051)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.0021 SL (0.00039)	<u>0.11</u> (0.003)	ND,SL (0.00063)	0.0029 (0.00006)	0.00039 (0.000061)
Phenanthrene	1.1	0.00254 SL (0.00039)	0.12 (0.003)	0.00053 J,SL (0.00063)	0.00087 (0.00006)	0.00035 (0.000061)
Pyrene	0.13	0.000354 J,SL (0.00039)	0.028 (0.0005)	0.00026 J,SL (0.00063)	0.0003 (0.00005)	0.00017 (0.000051)
Metals						
Lead	0.005	ND,SL (0.001)	ND (0.001)	0.00014 J,SL (0.00052)	0.00011 J (0.001)	0.00012 J (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-155 C-155_01122012 1/12/2012	C-156 C-156_01122012 1/12/2012	C-157 C-157_01122012 1/12/2012	C-157 GW-11109614-C-157-072816-JM-032 7/28/2016	C-158 C-158_01122012 1/12/2012
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	NA	0.000039 J (0.00005)	NA
Benzo(a)anthracene	0.0039	NA	NA	NA	0.000012 J (0.00005)	NA
Benzo(a)pyrene	0.0002	NA	NA	NA	0.000011 J (0.00005)	NA
Benzo(b)fluoranthene	0.0012	NA	NA	NA	0.000017 J (0.00005)	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	NA	0.000011 J (0.00005)	NA
Chrysene	0.0019	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.000011 J (0.00005)	ND (0.0005)
Fluorene	1.9	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00005)	0.0005 (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00006)	ND (0.0005)
Phenanthrene	1.1	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00006)	ND (0.0005)
Pyrene	0.13	ND (0.0005)	0.0007 (0.0005)	ND (0.0005)	0.000042 J (0.00005)	0.0007 (0.0005)
Metals						
Lead	0.005	ND (0.001)	ND (0.001)	ND (0.001)	0.00019 J (0.001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-159 C-159_01122012 1/12/2012	C-161 GW-11109614-C-161-080116-JM-035 8/1/2016	C-163 GW-11109614-C-163-072716-AC-021 7/27/2016	C-163 GW-11109614-C-163D-072716-AC-023 7/27/2016 Field Duplicate	C-164 C-164_01122012 1/12/2012
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	ND (0.002)	0.031 (0.002)	0.001 J (0.002)	0.001 J (0.002)	ND (0.002)
Ethyl Benzene	0.7	ND (0.001)	0.007 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.006 (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	0.014 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	0.003 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	0.0007 J (0.001)	0.0006 J (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	0.0014 (0.000051)	0.0005 (0.000051)	0.00036 (0.00005)	NA
Benzo(a)anthracene	0.0039	NA	0.00087 (0.000051)	0.000065 (0.000051)	0.000055 (0.00005)	NA
Benzo(a)pyrene	0.0002	NA	<u>0.0006 (0.000051)</u>	0.000032 J (0.000051)	0.000024 J (0.00005)	NA
Benzo(b)fluoranthene	0.0012	NA	0.00087 (0.000051)	0.000046 J (0.000051)	0.000034 J (0.00005)	NA
Benzo(g,h,i)perylene	0.00026	NA	0.00022 (0.000051)	0.00002 J (0.000051)	0.000014 J (0.00005)	NA
Chrysene	0.0019	ND (0.0005)	0.00085 (0.000051)	0.000085 (0.000051)	0.000074 (0.00005)	ND (0.0005)
Fluorene	1.9	ND (0.0005)	0.0058 (0.000051)	0.0022 (0.000051)	0.0017 (0.00005)	0.002 (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.0005)	0.0035 (0.000061)	ND (0.000061)	ND (0.00006)	ND (0.0005)
Phenanthrene	1.1	ND (0.0005)	0.0056 (0.000061)	0.00089 (0.000061)	0.00058 (0.00006)	0.001 (0.0005)
Pyrene	0.13	ND (0.0005)	0.0028 (0.000051)	0.00049 (0.000051)	0.00042 (0.00005)	ND (0.0005)
Metals						
Lead	0.005	ND (0.001)	0.00019 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-165 C-165_01122012 1/12/2012	C-168 C-168_20210504 5/4/2021	C-168 C-168_SL_20220509 5/9/2022	C-169 GW-11109614-C-169-080216-JM-043 8/2/2016	C-170 GW-11109614-C-170-072916-AC-029 7/29/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND,SL (0.0005)	<u>0.37</u> (0.005)	ND (0.001)
Cumene	3.5	ND (0.002)	0.00067 J (0.005)	ND,SL (0.001)	0.034 (0.01)	ND (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND,SL (0.001)	0.15 (0.005)	ND (0.001)
Methyl tert-butyl ether	0.02	0.001 (0.001)	ND (0.001)	ND,SL (0.001)	ND (0.005)	ND (0.001)
Toluene	1	ND (0.001)	0.00025 J (0.001)	ND,SL (0.001)	0.21 (0.005)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.005)	ND,SL (0.002)	0.25 (0.01)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.005)	ND,SL (0.002)	0.072 (0.01)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.006)	ND,SL (0.001)	0.6 (0.005)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	0.00023 J (0.00051)	ND,SL (0.000077)	0.014 (0.0005)	0.00017 (0.00005)
Benzo(a)anthracene	0.0039	NA	0.00068 (0.00051)	ND,SL (0.000038)	<u>0.0049</u> (0.0005)	0.000017 J (0.00005)
Benzo(a)pyrene	0.0002	NA	<u>0.0011</u> (0.00051)	0.0000618 B,SL (0.000038)	<u>0.0029</u> (0.0005)	0.000011 J (0.00005)
Benzo(b)fluoranthene	0.0012	NA	<u>0.0013</u> (0.00051)	ND,SL (0.000038)	<u>0.0031</u> (0.0005)	0.000015 J (0.00005)
Benzo(g,h,i)perylene	0.00026	NA	<u>0.00055</u> (0.00051)	0.0000583 J,SL (0.000077)	<u>0.00071</u> (0.0005)	ND (0.00005)
Chrysene	0.0019	ND (0.0005)	0.00088 (0.00051)	ND,SL (0.000077)	<u>0.019</u> (0.0005)	0.000024 J (0.00005)
Fluorene	1.9	ND (0.0005)	0.00046 J (0.00051)	ND,SL (0.000077)	0.05 (0.0005)	0.000022 J (0.00005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.0005)	ND (0.00051)	ND,SL (0.000077)	<u>0.36</u> (0.006)	0.000068 (0.00006)
Phenanthrene	1.1	ND (0.0005)	0.00052 (0.00051)	ND,SL (0.000077)	0.17 (0.006)	ND (0.00006)
Pyrene	0.13	ND (0.0005)	0.0033 (0.00051)	0.000299 SL (0.000077)	0.017 (0.0005)	0.00021 (0.00005)
Metals						
Lead	0.005	ND (0.001)	0.000091 J (0.00052)	ND,SL (0.001)	ND (0.001)	0.0011 (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-170 GW-11109614-C-170-082616-AC-001 8/26/2016	C-170 GW-11109614-C-170D-082616-AC-002 8/26/2016 Field Duplicate	C-171 GW-11109614-C-171-072916-AC-031 7/29/2016	C-171 GW-11109614-C-171-082616-AC-003 8/26/2016	C-172 GW-11109614-C-172-072916-JM-038 7/29/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0007 J (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.00019 (0.000052)	0.00024 (0.000052)	0.00025 (0.000051)	0.00032 (0.00005)	0.00023 (0.000051)
Benzo(a)anthracene	0.0039	0.00004 J (0.000052)	0.000037 J (0.000052)	0.000028 J (0.000051)	0.000042 J (0.00005)	0.00015 (0.000051)
Benzo(a)pyrene	0.0002	0.000047 J (0.000052)	0.000041 J (0.000052)	0.000011 J (0.000051)	0.000027 J (0.00005)	0.00011 (0.000051)
Benzo(b)fluoranthene	0.0012	0.000048 J (0.000052)	0.000046 J (0.000052)	0.000014 J (0.000051)	0.000033 J (0.00005)	0.00013 (0.000051)
Benzo(g,h,i)perylene	0.00026	0.000031 J (0.000052)	0.000031 J (0.000052)	ND (0.000051)	0.000027 J (0.00005)	0.000043 J (0.000051)
Chrysene	0.0019	0.000033 J (0.000052)	0.000044 J (0.000052)	0.000021 J (0.000051)	0.000039 J (0.00005)	0.00016 (0.000051)
Fluorene	1.9	0.000054 (0.000052)	0.000062 (0.000052)	0.000064 (0.000051)	0.000036 J (0.00005)	0.0028 (0.000051)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.00011 (0.000063)	0.00011 (0.000063)	0.000037 J (0.000061)	0.000071 (0.00006)	0.00016 (0.000061)
Phenanthrene	1.1	0.000056 J (0.000063)	0.000059 J (0.000063)	0.00011 (0.000061)	0.00013 (0.00006)	0.0013 (0.000061)
Pyrene	0.13	0.00012 (0.000052)	0.00011 (0.000052)	0.00007 (0.000051)	0.000089 (0.00005)	0.00065 (0.000051)
Metals						
Lead	0.005	0.0012 (0.001)	0.0012 (0.001)	0.00012 J (0.001)	0.00064 J (0.001)	0.00024 J (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-172 GW-11109614-C-172-082616-AC-004 8/26/2016	C-174 GW-11109614-C-50D-072016-AC-003 7/20/2016	C-174 C-174_20190226 2/26/2019	C-175 C-175-20220118 1/18/2022	C-175 C-175_20220413 4/13/2022
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	0.00078 J (0.001)	0.0013 (0.0005)
Cumene	3.5	0.0007 J (0.002)	ND (0.002)	ND (0.005)	0.0034 (0.001)	0.0097 (0.001)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	0.00059 J (0.001)	0.0011 (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	0.00061 J (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	NA	0.0025 (0.001)	0.0042 (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	NA	0.00083 J (0.001)	0.0014 J (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	ND (0.005)	0.004 (0.003)	0.0052 (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.00058 (0.000052)	0.00017 (0.00005)	NA	NA	0.000277 (0.000087)
Benzo(a)anthracene	0.0039	0.00017 (0.000052)	0.00016 (0.00005)	NA	NA	0.000383 (0.000043)
Benzo(a)pyrene	0.0002	0.000097 (0.000052)	<u>0.00024 (0.00005)</u>	NA	NA	<u>0.000309 (0.000043)</u>
Benzo(b)fluoranthene	0.0012	0.00012 (0.000052)	0.00023 (0.00005)	NA	NA	0.000254 (0.000043)
Benzo(g,h,i)perylene	0.00026	0.000047 J (0.000052)	0.00015 (0.00005)	NA	NA	0.000213 (0.000087)
Chrysene	0.0019	0.00018 (0.000052)	0.00015 (0.00005)	NA	NA	0.000315 (0.000087)
Fluorene	1.9	0.0062 (0.000052)	0.00071 (0.00005)	NA	NA	0.000489 (0.000087)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	0.000176 (0.000087)
Naphthalene	0.1	0.00025 (0.000062)	ND (0.00006)	NA	NA	0.00049 (0.000087)
Phenanthrene	1.1	0.0077 (0.000062)	0.0002 (0.00006)	NA	NA	0.000277 (0.000087)
Pyrene	0.13	0.0014 (0.000052)	0.00043 (0.00005)	NA	NA	0.000768 (0.000087)
Metals						
Lead	0.005	0.00077 J (0.001)	ND (0.001)	NA	NA	0.0017 (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-175 C-175_20220628 6/28/2022	C-176 C-176_20220413 4/13/2022	C-176 C-176_20220627 6/27/2022	C-49 C-49_071310 7/13/2010	C-49 GW-11109614-C-49-072116-JM-005 7/21/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	NA	0.00055 (0.0005)	NA	ND (0.001)	ND (0.001)
Cumene	3.5	NA	0.0045 (0.001)	NA	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	NA	ND (0.001)	NA	0.0005 J (0.001)	0.001 (0.001)
Toluene	1	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	NA	ND (0.002)	NA	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	NA	ND (0.002)	NA	ND (0.002)	ND (0.002)
Xylenes (total)	10	NA	0.0023 (0.001)	NA	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.000632 (0.00008)	0.00339 (0.000087)	0.00222 (0.000074)	NA	0.00019 (0.000052)
Benzo(a)anthracene	0.0039	0.000611 (0.00004)	0.00101 (0.000043)	0.00085 (0.000037)	NA	0.000017 J (0.000052)
Benzo(a)pyrene	0.0002	<u>0.000373 (0.00004)</u>	<u>0.000546 (0.000043)</u>	<u>0.000669 (0.000037)</u>	NA	ND (0.000052)
Benzo(b)fluoranthene	0.0012	0.000358 (0.00004)	0.000486 (0.000043)	0.000657 (0.000037)	NA	0.000013 J (0.000052)
Benzo(g,h,i)perylene	0.00026	0.000232 (0.00008)	0.00025 (0.000087)	<u>0.000306 (0.000074)</u>	NA	0.000012 J (0.000052)
Chrysene	0.0019	0.000491 (0.00008)	0.000746 (0.000087)	0.00069 (0.000074)	ND (0.005)	ND (0.000052)
Fluorene	1.9	0.000776 (0.00008)	0.0189 E (0.000087)	0.0268 (0.00093)	ND (0.005)	0.000011 J (0.000052)
Indeno(1,2,3-cd)pyrene	0.0023	0.000213 (0.00008)	0.00025 (0.000087)	0.000299 (0.000074)	NA	NA
Naphthalene	0.1	0.00149 (0.00008)	0.00074 (0.000087)	0.000548 (0.000074)	ND (0.005)	ND (0.000062)
Phenanthrene	1.1	0.000597 (0.00008)	0.0154 (0.0011)	0.0264 (0.00093)	ND (0.005)	ND (0.000062)
Pyrene	0.13	0.000986 (0.00008)	0.00244 (0.000087)	0.00174 (0.000074)	ND (0.005)	0.00004 J (0.000052)
Metals						
Lead	0.005	NA	ND (0.001)	NA	ND (0.000001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-50 C-50_071210 7/12/2010	C-50 GW-11109614-C-50-072716-JM-022 7/27/2016	C-51 C-51_11_9_2005 11/9/2005	C-51 GW-11109614-C-51-072716-JM-024 7/27/2016	C-51 GW-11109614-C-51D-072716-JM-026 7/27/2016	C-51 Field Duplicate
Water Quality							
pH [SU]	--	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds							
Benzene	0.005	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	ND (0.002)	0.0006 J (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds							
Anthracene	0.066	NA	0.000028 J (0.000051)	NA	0.00015 (0.00005)	0.00032 (0.000051)	0.00032 (0.000051)
Benzo(a)anthracene	0.0039	NA	ND (0.000051)	NA	0.00006 (0.00005)	0.00012 (0.000051)	0.00012 (0.000051)
Benzo(a)pyrene	0.0002	NA	ND (0.000051)	NA	0.000019 J (0.00005)	0.000053 (0.000051)	0.000053 (0.000051)
Benzo(b)fluoranthene	0.0012	NA	ND (0.000051)	NA	0.000031 J (0.00005)	0.000071 (0.000051)	0.000071 (0.000051)
Benzo(g,h,i)perylene	0.00026	NA	ND (0.000051)	NA	0.000015 J (0.00005)	0.000041 J (0.000051)	0.000041 J (0.000051)
Chrysene	0.0019	ND (0.005)	ND (0.000051)	NA	0.000059 (0.00005)	0.00013 (0.000051)	0.00013 (0.000051)
Fluorene	1.9	0.001 J (0.005)	0.000051 (0.000051)	NA	0.00099 (0.00005)	0.0018 (0.000051)	0.0018 (0.000051)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	ND (0.0001)	NA	NA	NA
Naphthalene	0.1	ND (0.005)	ND (0.000061)	NA	0.000041 J (0.00006)	0.00007 (0.000061)	0.00007 (0.000061)
Phenanthrene	1.1	ND (0.005)	ND (0.000061)	NA	0.000096 (0.00006)	0.00022 (0.000061)	0.00022 (0.000061)
Pyrene	0.13	0.002 J (0.005)	0.000065 (0.000051)	NA	0.00087 (0.00005)	0.0017 (0.000051)	0.0017 (0.000051)
Metals							
Lead	0.005	ND (0.000001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-52 C-52_071510 7/15/2010	C-52 GW-11109614-C-52-072716-AC-027 7/27/2016	C-53A C-53A_011210 1/12/2010	C-53A C-53A_071610 7/16/2010	C-54 GW-11109614-C-54-072116-AC-006 7/21/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	0.001 J (0.002)	0.003 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.001)	ND (0.001)	0.001 (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	0.00014 (0.00005)	NA	NA	0.000032 J (0.000052)
Benzo(a)anthracene	0.0039	NA	0.000033 J (0.00005)	NA	NA	0.000026 J (0.000052)
Benzo(a)pyrene	0.0002	NA	0.000025 J (0.00005)	NA	NA	0.000027 J (0.000052)
Benzo(b)fluoranthene	0.0012	NA	0.000042 J (0.00005)	NA	NA	0.000035 J (0.000052)
Benzo(g,h,i)perylene	0.00026	NA	0.00002 J (0.00005)	NA	NA	0.00002 J (0.000052)
Chrysene	0.0019	ND (0.005)	0.000043 J (0.00005)	ND (0.005)	ND (0.005)	0.000029 J (0.000052)
Fluorene	1.9	ND (0.005)	0.00001 J (0.00005)	ND (0.005)	0.003 J (0.005)	0.000013 J (0.000052)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.005)	ND (0.00006)	ND (0.005)	ND (0.005)	0.000045 J (0.000062)
Phenanthrene	1.1	ND (0.005)	0.00011 (0.00006)	ND (0.005)	ND (0.005)	ND (0.000062)
Pyrene	0.13	ND (0.005)	0.00015 (0.00005)	0.003 J (0.005)	0.002 J (0.005)	0.000042 J (0.000052)
Metals						
Lead	0.005	ND (0.000001)	ND (0.001)	ND (0.000001)	ND (0.000001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-54 GW-11109614-C54-081916-AC-03 8/19/2016	C-55 C-55_011410 1/14/2010	C-55 C-55_071610 7/16/2010	C-56 C-56_011510 1/15/2010	C-56 C-56_072710 7/27/2010
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.001)	0.0007 J (0.001)	0.0007 J (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.002)	0.001 J (0.002)	0.002 J (0.002)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	0.002 (0.001)	0.002 (0.001)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	0.001 (0.001)	0.001 (0.001)
1,2,4-Trimethylbenzene	0.53	0.0006 J (0.002)	ND (0.002)	ND (0.002)	0.02 (0.002)	0.029 (0.002)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	0.01 (0.002)	0.013 (0.002)
Xylenes (total)	10	ND (0.001)	0.0009 J (0.001)	ND (0.001)	0.021 (0.001)	0.023 (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	0.000045 J (0.000051)	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	0.000034 J (0.000051)	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	0.000034 J (0.000051)	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	0.000032 J (0.000051)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	0.000026 J (0.000051)	NA	NA	NA	NA
Chrysene	0.0019	0.000035 J (0.000051)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Fluorene	1.9	0.000025 J (0.000051)	ND (0.005)	ND (0.005)	0.009 (0.005)	0.029 (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	0.0001 (0.000061)	ND (0.005)	ND (0.005)	0.007 (0.005)	0.015 (0.005)
Phenanthrene	1.1	0.000091 (0.000061)	ND (0.005)	ND (0.005)	0.011 (0.005)	0.072 (0.005)
Pyrene	0.13	0.000055 (0.000051)	ND (0.005)	ND (0.005)	ND (0.005)	0.008 (0.005)
Metals						
Lead	0.005	0.00011 J (0.001)	0.00014 J (0.000001)	0.000069 J (0.000001)	0.0021 (0.000001)	0.0158 (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-56 C-56_20220106 1/6/2022	C-57 C-57_071410 7/14/2010	C-57 GW-11109614-C-57-072616-JM-018 7/26/2016	C-58 C-58_071410 7/14/2010	C-58 GW-11109614-C-58-072516-JM-014 7/25/2016
Water Quality						
pH [SU]	--	11.14	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	3.5	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	0.00098 (0.000051)	NA	0.00015 (0.000052)
Benzo(a)anthracene	0.0039	NA	NA	0.0012 (0.000051)	NA	0.00005 J (0.000052)
Benzo(a)pyrene	0.0002	NA	NA	<u>0.0011 (0.000051)</u>	NA	0.000013 J (0.000052)
Benzo(b)fluoranthene	0.0012	NA	NA	0.0012 (0.000051)	NA	0.000015 J (0.000052)
Benzo(g,h,i)perylene	0.00026	NA	NA	<u>0.00058 (0.000051)</u>	NA	ND (0.000052)
Chrysene	0.0019	NA	<u>0.003 J (0.005)</u>	0.0013 (0.000051)	ND (0.005)	0.000053 (0.000052)
Fluorene	1.9	NA	0.006 (0.005)	0.0019 (0.000051)	ND (0.005)	0.00057 (0.000052)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	NA	0.004 J (0.005)	0.0017 (0.000061)	ND (0.005)	0.00012 (0.000063)
Phenanthrene	1.1	NA	0.008 (0.005)	0.0038 (0.000061)	0.002 J (0.005)	0.0016 (0.000063)
Pyrene	0.13	NA	0.005 J (0.005)	0.0022 (0.000051)	0.001 J (0.005)	0.00061 (0.000052)
Metals						
Lead	0.005	NA	ND (0.000001)	ND (0.001)	ND (0.000001)	ND (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-60 C-60_071610 7/16/2010	C-60 GW-11109614-C-60-072116-AC-008 7/21/2016	C-61 C-61_20220413 4/13/2022	C-61 C-61_20220628 6/28/2022	C-62 C-62_20180626 6/26/2018
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	ND (0.001)	ND (0.0005)	NA	ND (0.001)
Cumene	3.5	ND (0.002)	ND (0.002)	ND (0.001)	NA	ND (0.001)
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)
Methyl tert-butyl ether	0.02	0.003 (0.001)	0.001 (0.001)	0.0025 (0.001)	NA	ND (0.001)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.001)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.001)
Xylenes (total)	10	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.003)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	0.000069 (0.000052)	0.0000957 (0.00008)	0.0000419 J (0.00008)	0.000113 (0.00005)
Benzo(a)anthracene	0.0039	NA	0.000025 J (0.000052)	0.0000369 J (0.00004)	ND (0.00004)	ND (0.00005)
Benzo(a)pyrene	0.0002	NA	0.000012 J (0.000052)	ND (0.00004)	ND (0.00004)	ND (0.00005)
Benzo(b)fluoranthene	0.0012	NA	0.00002 J (0.000052)	0.0000309 J (0.00004)	ND (0.00004)	ND (0.00005)
Benzo(g,h,i)perylene	0.00026	NA	0.000012 J (0.000052)	ND (0.00008)	ND (0.00008)	ND (0.00005)
Chrysene	0.0019	ND (0.005)	0.000017 J (0.000052)	ND (0.00008)	ND (0.00008)	ND (0.00005)
Fluorene	1.9	ND (0.005)	0.000012 J (0.000052)	0.00015 (0.00008)	0.000147 (0.00008)	0.000515 (0.00005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	ND (0.00008)	ND (0.00008)	NA
Naphthalene	0.1	ND (0.005)	ND (0.000062)	ND (0.00008)	ND (0.00008)	0.00658 (0.00025)
Phenanthrene	1.1	ND (0.005)	ND (0.000062)	0.000149 (0.00008)	0.0000606 J (0.00008)	0.000344 (0.00005)
Pyrene	0.13	ND (0.005)	0.000091 (0.000052)	0.000115 (0.00008)	0.000113 (0.00008)	0.0000542 (0.00005)
Metals						
Lead	0.005	ND (0.000001)	ND (0.001)	ND (0.001)	NA	ND (0.002)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-62 C-62_20220106 1/6/2022	C-63 C-63_011210 1/12/2010	C-63 C-63_071610 7/16/2010	C-64 C-64_011510 1/15/2010	C-64 C-44_071910 7/19/2010
Water Quality						
pH [SU]	--	7.08	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	NA	0.003 (0.001)	ND (0.001)	ND (0.001)	0.003 (0.001)
Cumene	3.5	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	NA	0.002 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Toluene	1	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.003 (0.001)
1,2,4-Trimethylbenzene	0.53	NA	0.001 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	NA	0.005 (0.001)	ND (0.001)	ND (0.001)	0.0008 J (0.001)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	NA	NA	NA
Chrysene	0.0019	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Fluorene	1.9	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Phenanthrene	1.1	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Pyrene	0.13	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Metals						
Lead	0.005	NA	ND (0.000001)	0.00042 J (0.000001)	ND (0.000001)	ND (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location Field Sample ID Sample Date Comments	PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500	C-65 C-65_011510 1/15/2010	C-95 C-95_011310 1/13/2010	C-95 C-95_071310 7/13/2010	C-96 C-96_071310 7/13/2010	C-96 GW-11109614-C-96-072116-JM-009 7/21/2016
Water Quality						
pH [SU]	--	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Benzene	0.005	ND (0.001)	0.0005 J (0.001)	ND (0.001)	ND (0.001)	ND (0.01)
Cumene	3.5	ND (0.002)	0.018 (0.002)	0.019 (0.002)	ND (0.002)	ND (0.02)
Ethyl Benzene	0.7	ND (0.001)	0.0007 J (0.001)	ND (0.001)	ND (0.001)	ND (0.01)
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.01)
Toluene	1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.01)
1,2,4-Trimethylbenzene	0.53	ND (0.002)	0.001 J (0.002)	ND (0.002)	ND (0.002)	ND (0.02)
1,3,5-Trimethylbenzene	0.53	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.02)
Xylenes (total)	10	ND (0.001)	0.004 (0.001)	0.002 (0.001)	ND (0.001)	ND (0.01)
Semivolatile Organic Compounds						
Anthracene	0.066	NA	NA	NA	NA	0.00049 (0.00005)
Benzo(a)anthracene	0.0039	NA	NA	NA	NA	0.00027 (0.00005)
Benzo(a)pyrene	0.0002	NA	NA	NA	NA	0.00019 (0.00005)
Benzo(b)fluoranthene	0.0012	NA	NA	NA	NA	0.0002 (0.00005)
Benzo(g,h,i)perylene	0.00026	NA	NA	NA	NA	0.0001 (0.00005)
Chrysene	0.0019	ND (0.048)	ND (0.005)	ND (0.005)	ND (0.005)	0.0003 (0.00005)
Fluorene	1.9	ND (0.048)	ND (0.005)	ND (0.005)	0.003 J (0.005)	0.00096 (0.00005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA	NA	NA
Naphthalene	0.1	ND (0.048)	ND (0.005)	ND (0.005)	ND (0.005)	0.00022 (0.00006)
Phenanthrene	1.1	ND (0.048)	ND (0.005)	ND (0.005)	0.004 J (0.005)	0.002 (0.00006)
Pyrene	0.13	ND (0.048)	ND (0.005)	ND (0.005)	0.003 J (0.005)	0.0011 (0.00005)
Metals						
Lead	0.005	0.001 (0.000001)	ND (0.000001)	ND (0.000001)	ND (0.000001)	0.0001 J (0.001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix H

Table H4

Summary of Historical Groundwater Analytical Results

Tank Group 06

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

Location	PADEP Non-Residential	C-97	C-98	C-98
Field Sample ID	Groundwater MSC -- Used	C-97	C-98_011410	C-98_071610
Sample Date	Aquifer -- TDS <2500	10/21/2004	1/14/2010	7/16/2010
Comments				
Water Quality				
pH [SU]	--	NA	NA	NA
Volatile Organic Compounds				
Benzene	0.005	0.0014	ND (0.001)	ND (0.001)
Cumene	3.5	0.037	ND (0.002)	ND (0.002)
Ethyl Benzene	0.7	ND (0.005)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	0.012	ND (0.001)	ND (0.001)
Toluene	1	ND (0.005)	ND (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	0.53	NA	0.0006 J (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	NA	ND (0.002)	ND (0.002)
Xylenes (total)	10	ND (0.01)	0.001 (0.001)	ND (0.001)
Semivolatile Organic Compounds				
Anthracene	0.066	NA	NA	NA
Benzo(a)anthracene	0.0039	NA	NA	NA
Benzo(a)pyrene	0.0002	NA	NA	NA
Benzo(b)fluoranthene	0.0012	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	NA	NA	NA
Chrysene	0.0019	ND (0.00014)	ND (0.005)	ND (0.005)
Fluorene	1.9	ND (0.0098)	0.002 J (0.005)	0.001 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	NA	NA	NA
Naphthalene	0.1	ND (0.005)	ND (0.005)	ND (0.005)
Phenanthrene	1.1	ND (0.0098)	ND (0.005)	0.001 J (0.005)
Pyrene	0.13	ND (0.0098)	0.001 J (0.005)	0.001 J (0.005)
Metals				
Lead	0.005	ND (0.005)	ND (0.000001)	ND (0.000001)

Notes:

- 1 All concentrations reported in mg/L; detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 B, E, and SL are unknown qualifiers.
- 4 Underlined concentrations exceed the PADEP Non-Residential Groundwater MSC -- Used Aquifer -- TDS <2500.

Abbreviations:

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

Appendix I

Laboratory Reports





ANALYTICAL REPORT

Lab Number:	L2268455
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/13/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268455-01	GPR281-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:30	12/06/22
L2268455-02	GPR281-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:45	12/06/22
L2268455-03	GPR281-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 09:55	12/06/22
L2268455-04	GPR281-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:05	12/06/22
L2268455-05	GPR281-11-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:20	12/06/22
L2268455-06	GPR281-12-SS01	SOIL	PHILADELPHIA, PA	12/06/22 10:30	12/06/22
L2268455-07	GPR282-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:30	12/06/22
L2268455-08	GPR282-03-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:40	12/06/22
L2268455-09	GPR282-05-SS01	SOIL	PHILADELPHIA, PA	12/06/22 11:50	12/06/22
L2268455-10	GPR282-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:00	12/06/22
L2268455-11	GPR282-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:10	12/06/22
L2268455-12	GPR282-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:20	12/06/22
L2268455-13	GPR282-12-SS01	SOIL	PHILADELPHIA, PA	12/06/22 12:30	12/06/22
L2268455-14	GPR284-01-SS01	SOIL	PHILADELPHIA, PA	12/06/22 13:30	12/06/22
L2268455-15	GPR284-03-SS01	SOIL	PHILADELPHIA, PA	12/06/22 13:45	12/06/22
L2268455-16	GPR284-05-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:00	12/06/22
L2268455-17	GPR284-07-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:10	12/06/22
L2268455-18	GPR284-08-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:20	12/06/22
L2268455-19	GPR284-09-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:30	12/06/22
L2268455-20	GPR284-10-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:35	12/06/22
L2268455-21	GPR284-11-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:40	12/06/22
L2268455-22	GPR284-13-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:50	12/06/22
L2268455-23	GPR284-14-SS01	SOIL	PHILADELPHIA, PA	12/06/22 14:55	12/06/22
L2268455-24	GPR284-15-SS01	SOIL	PHILADELPHIA, PA	12/06/22 15:00	12/06/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268455-25	DUP-52	SOIL	PHILADELPHIA, PA	12/06/22 11:00	12/06/22
L2268455-26	TB-221206	WATER	PHILADELPHIA, PA	12/06/22 00:00	12/06/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

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

L2268455-11: The surrogate recovery is outside the acceptance criteria for 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.

L2268455-12: The internal standard (IS) response for fluorobenzene (24%), chlorobenzene-d5 (27%), and 1,4-dichlorobenzene-d4 (27%) and surrogate recoveries for 1,2-dichloroethane-d4 (133%) and dibromofluoromethane (135%) were outside the acceptance criteria. A second low-level vial was analyzed, but no data was acquired due to instrument error. Since the IS response was below method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2268455-16: 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.

L2268455-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (194%); 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.

L2268455-17: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (27%) and the surrogate recoveries for toluene-d8 (131%) and 4-bromofluorobenzene (293%) were outside the acceptance criteria; however, re-analysis achieved the following results: 1,4-dichlorobenzene-d4 (46%) and 4-bromofluorobenzene (196%). The results of both analyses are reported; however, since the IS response was below method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Case Narrative (continued)

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2268455-26, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics

L2268455-06D, -12D, -17D, and -22D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2268455-13: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

Total Metals

The WG1720509-3 MS recovery for lead (13%), performed on L2268455-01, 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: 12/13/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01
 Client ID: GPR281-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 21:33
 Analyst: JIC
 Percent Solids: 68%

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	0.00080	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00087	1
1,2-Dibromoethane	ND		mg/kg	0.00080	0.00047	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0032	0.00090	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	ND		mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.00052	J	mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.0014	J	mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02
 Client ID: GPR281-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 03:48
 Analyst: JIC
 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	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00040	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00081	0.00021	1
Toluene	ND		mg/kg	0.00081	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00040	0.00024	1
Ethylbenzene	ND		mg/kg	0.00081	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00045	1
o-Xylene	0.00084		mg/kg	0.00081	0.00023	1
Xylenes, Total	0.00084		mg/kg	0.00081	0.00023	1
Isopropylbenzene	0.00015	J	mg/kg	0.00081	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.0024		mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03
 Client ID: GPR281-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 21:59
 Analyst: JIC
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00084	1
o-Xylene	ND		mg/kg	0.0015	0.00044	1
Xylenes, Total	ND		mg/kg	0.0015	0.00044	1
Isopropylbenzene	ND		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04
 Client ID: GPR281-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:05
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 22:26
 Analyst: JIC
 Percent Solids: 66%

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	0.00044	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	0.00031	1
p/m-Xylene	ND		mg/kg	0.0044	0.0012	1
o-Xylene	ND		mg/kg	0.0022	0.00064	1
Xylenes, Total	ND		mg/kg	0.0022	0.00064	1
Isopropylbenzene	ND		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0044	0.00042	1
1,2,4-Trimethylbenzene	0.00085	J	mg/kg	0.0044	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05
 Client ID: GPR281-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 22:53
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	0.00037	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	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	0.00021	J	mg/kg	0.0013	0.00018	1
p/m-Xylene	0.0012	J	mg/kg	0.0026	0.00072	1
o-Xylene	0.00064	J	mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0018	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00045	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0012	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06
 Client ID: GPR281-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 23:20
 Analyst: JIC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.00036	J	mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00016	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00038	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07
 Client ID: GPR282-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/08/22 23:47
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00065	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00065	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00073	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.00053	J	mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 00:14
 Analyst: JIC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	0.00045	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00045	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0013		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.00085	J	mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09
 Client ID: GPR282-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 00:40
 Analyst: JIC
 Percent Solids: 59%

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	0.00090	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	ND		mg/kg	0.0018	0.00097	1
1,2-Dibromoethane	ND		mg/kg	0.00090	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00052	1
Xylenes, Total	ND		mg/kg	0.0018	0.00052	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0036	0.00034	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10
 Client ID: GPR282-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 01:07
 Analyst: JIC
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00090	J	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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:09
 Analyst: NLK
 Percent Solids: 60%

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	0.00039	1
Benzene	ND		mg/kg	0.00098	0.00032	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00050	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.00098	0.00057	1
Ethylbenzene	0.00029	J	mg/kg	0.0020	0.00028	1
p/m-Xylene	0.0017	J	mg/kg	0.0039	0.0011	1
o-Xylene	0.0038		mg/kg	0.0020	0.00057	1
Xylenes, Total	0.0055	J	mg/kg	0.0020	0.00057	1
Isopropylbenzene	0.0017	J	mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	0.0057		mg/kg	0.0039	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	285	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 04:41
 Analyst: JIC
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.30	0.031	1
Benzene	0.094		mg/kg	0.076	0.025	1
1,2-Dichloroethane	ND		mg/kg	0.15	0.039	1
Toluene	0.44		mg/kg	0.15	0.083	1
1,2-Dibromoethane	ND		mg/kg	0.076	0.045	1
Ethylbenzene	0.11	J	mg/kg	0.15	0.021	1
p/m-Xylene	0.30		mg/kg	0.30	0.085	1
o-Xylene	0.12	J	mg/kg	0.15	0.044	1
Xylenes, Total	0.42	J	mg/kg	0.15	0.044	1
Isopropylbenzene	0.072	J	mg/kg	0.15	0.017	1
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.30	0.029	1
1,2,4-Trimethylbenzene	0.22	J	mg/kg	0.30	0.051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:03
 Analyst: NLK
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00095	1
o-Xylene	ND		mg/kg	0.0017	0.00049	1
Xylenes, Total	ND		mg/kg	0.0017	0.00049	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00033	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.00087	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	133	Q	70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	135	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13
 Client ID: GPR282-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 01:33
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00074	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14
 Client ID: GPR284-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 02:00
 Analyst: JIC
 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	0.0031	0.00032	1
Benzene	ND		mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00085	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00088	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	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15
 Client ID: GPR284-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 02:27
 Analyst: JIC
 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	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00068	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00074	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00076	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 05:08
 Analyst: JIC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.023	J	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	0.087		mg/kg	0.058	0.0082	1
p/m-Xylene	0.20		mg/kg	0.12	0.033	1
o-Xylene	0.096		mg/kg	0.058	0.017	1
Xylenes, Total	0.30		mg/kg	0.058	0.017	1
Isopropylbenzene	0.081		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	0.54		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.75		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:36
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	0.0043		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00037	1
Toluene	0.0023		mg/kg	0.0014	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.010		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.025		mg/kg	0.0029	0.00082	1
o-Xylene	0.013		mg/kg	0.0014	0.00042	1
Xylenes, Total	0.038		mg/kg	0.0014	0.00042	1
Isopropylbenzene	0.015		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.11		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.13		mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	194	Q	70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/10/22 16:58
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00065	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	0.00073	J	mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00065	0.00038	1
Ethylbenzene	0.00098	J	mg/kg	0.0013	0.00018	1
p/m-Xylene	0.00097	J	mg/kg	0.0026	0.00073	1
o-Xylene	0.0013		mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0023	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.0058		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	293	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17 R
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:42
 Analyst: NLK
 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	0.0031	0.00031	1
Benzene	ND		mg/kg	0.00077	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	ND		mg/kg	0.0015	0.00083	1
1,2-Dibromoethane	ND		mg/kg	0.00077	0.00045	1
Ethylbenzene	0.00047	J	mg/kg	0.0015	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00086	1
o-Xylene	0.0011	J	mg/kg	0.0015	0.00045	1
Xylenes, Total	0.0011	J	mg/kg	0.0015	0.00045	1
Isopropylbenzene	0.0026		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.00054	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	0.00084	J	mg/kg	0.0031	0.00051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	196	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18
 Client ID: GPR284-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:52
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 13:26
 Analyst: JIC
 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	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.0013	J	mg/kg	0.0026	0.00074	1
o-Xylene	0.0011	J	mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0024	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.0013		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20
 Client ID: GPR284-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:35
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 13:52
 Analyst: JIC
 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	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0011	J	mg/kg	0.0022	0.00061	1
o-Xylene	0.00086	J	mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0020	J	mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00096	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00059	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21
 Client ID: GPR284-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 14:18
 Analyst: JIC
 Percent Solids: 69%

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
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00037	1
Toluene	ND		mg/kg	0.0014	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00072	0.00042	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.00099	J	mg/kg	0.0029	0.00081	1
o-Xylene	ND		mg/kg	0.0014	0.00042	1
Xylenes, Total	0.00099	J	mg/kg	0.0014	0.00042	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22
 Client ID: GPR284-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 14:44
 Analyst: JIC
 Percent Solids: 57%

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	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	0.0011	J	mg/kg	0.0033	0.00091	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0011	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-23
 Client ID: GPR284-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 15:11
 Analyst: JIC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	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	0.00076	J	mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00076	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24
 Client ID: GPR284-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 15:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:57
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00020	J	mg/kg	0.00053	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	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25
 Client ID: DUP-52
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 16:03
 Analyst: JIC
 Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0046	0.00047	1
Benzene	ND		mg/kg	0.0012	0.00039	1
1,2-Dichloroethane	ND		mg/kg	0.0023	0.00060	1
Toluene	ND		mg/kg	0.0023	0.0013	1
1,2-Dibromoethane	ND		mg/kg	0.0012	0.00068	1
Ethylbenzene	ND		mg/kg	0.0023	0.00033	1
p/m-Xylene	ND		mg/kg	0.0046	0.0013	1
o-Xylene	ND		mg/kg	0.0023	0.00068	1
Xylenes, Total	ND		mg/kg	0.0023	0.00068	1
Isopropylbenzene	ND		mg/kg	0.0023	0.00025	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0046	0.00045	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0046	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-26
 Client ID: TB-221206
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 00:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:15
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-26
 Client ID: TB-221206
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 00:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/07/22 19:35
 Analyst: MJV

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	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/07/22 19:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26 Batch: WG1720722-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/08/22 21:06
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-10,13-15 Batch: WG1721432-5					
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	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/08/22 21:06
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12,16 Batch: WG1721434-5					
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	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 26 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/09/22 09:01
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19-23,25 Batch: WG1722187-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/10/22 11:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17 Batch: WG1722219-5					
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	101		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 13:53
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11-12,16-18,24 Batch: WG1722625-5					
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	96		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

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: WG1720722-3 WG1720722-4								
Methyl tert butyl ether	92		92		63-130	0		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	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	99		100		70-130	1		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	99		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-10,13-15 Batch: WG1721432-3 WG1721432-4								
Methyl tert butyl ether	85		87		66-130	2		30
Benzene	93		93		70-130	0		30
1,2-Dichloroethane	84		86		70-130	2		30
Toluene	96		96		70-130	0		30
1,2-Dibromoethane	90		92		70-130	2		30
Ethylbenzene	95		95		70-130	0		30
p/m-Xylene	97		97		70-130	0		30
o-Xylene	94		93		70-130	1		30
Isopropylbenzene	96		94		70-130	2		30
1,3,5-Trimethylbenzene	95		94		70-130	1		30
1,2,4-Trimethylbenzene	93		92		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,16 Batch: WG1721434-3 WG1721434-4								
Methyl tert butyl ether	85		87		66-130	2		30
Benzene	93		93		70-130	0		30
1,2-Dichloroethane	84		86		70-130	2		30
Toluene	96		96		70-130	0		30
1,2-Dibromoethane	90		92		70-130	2		30
Ethylbenzene	95		95		70-130	0		30
p/m-Xylene	97		97		70-130	0		30
o-Xylene	94		93		70-130	1		30
Isopropylbenzene	96		94		70-130	2		30
1,3,5-Trimethylbenzene	95		94		70-130	1		30
1,2,4-Trimethylbenzene	93		92		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	96		97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 26 Batch: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19-23,25 Batch: WG1722187-3 WG1722187-4									
Methyl tert butyl ether	101		104		66-130		3		30
Benzene	103		101		70-130		2		30
1,2-Dichloroethane	94		94		70-130		0		30
Toluene	101		100		70-130		1		30
1,2-Dibromoethane	99		102		70-130		3		30
Ethylbenzene	108		107		70-130		1		30
p/m-Xylene	98		97		70-130		1		30
o-Xylene	95		95		70-130		0		30
Isopropylbenzene	96		94		70-130		2		30
1,3,5-Trimethylbenzene	105		103		70-130		2		30
1,2,4-Trimethylbenzene	105		104		70-130		1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	94		94		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17 Batch: WG1722219-3 WG1722219-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	106		103		70-130	3		30
1,2-Dichloroethane	95		96		70-130	1		30
Toluene	103		98		70-130	5		30
1,2-Dibromoethane	102		104		70-130	2		30
Ethylbenzene	105		98		70-130	7		30
p/m-Xylene	106		98		70-130	8		30
o-Xylene	105		98		70-130	7		30
Isopropylbenzene	101		94		70-130	7		30
1,3,5-Trimethylbenzene	101		96		70-130	5		30
1,2,4-Trimethylbenzene	100		96		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		91		70-130
Toluene-d8	99		101		70-130
4-Bromofluorobenzene	92		89		70-130
Dibromofluoromethane	92		93		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11-12,16-18,24 Batch: WG1722625-3 WG1722625-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	92		92		70-130	0		30
Toluene	91		92		70-130	1		30
1,2-Dibromoethane	97		97		70-130	0		30
Ethylbenzene	92		92		70-130	0		30
p/m-Xylene	98		98		70-130	0		30
o-Xylene	96		95		70-130	1		30
Isopropylbenzene	96		95		70-130	1		30
1,3,5-Trimethylbenzene	95		96		70-130	1		30
1,2,4-Trimethylbenzene	96		95		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	96		95		70-130
4-Bromofluorobenzene	95		93		70-130
Dibromofluoromethane	105		105		70-130



Matrix Spike Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 26 QC Batch ID: WG1721462-3 QC Sample: L2268455-26 Client ID: TB-221206													
1,2-Dibromoethane	ND	0.252	0.250	99		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01
 Client ID: GPR281-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 20:37
 Analyst: JG
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.5		mg/kg	0.24	0.029	1
Fluorene	0.20	J	mg/kg	0.24	0.024	1
Phenanthrene	0.71		mg/kg	0.14	0.029	1
Anthracene	0.23		mg/kg	0.14	0.047	1
Pyrene	0.32		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.24		mg/kg	0.14	0.027	1
Chrysene	0.26		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.34		mg/kg	0.14	0.041	1
Benzo(a)pyrene	0.30		mg/kg	0.19	0.059	1
Benzo(ghi)perylene	0.19		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02
 Client ID: GPR281-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:01
 Analyst: JG
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.19	0.023	1
Fluorene	0.14	J	mg/kg	0.19	0.018	1
Phenanthrene	0.33		mg/kg	0.11	0.023	1
Anthracene	0.061	J	mg/kg	0.11	0.037	1
Pyrene	0.38		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.19		mg/kg	0.11	0.021	1
Chrysene	0.55		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.12		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.061	J	mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.044	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03
 Client ID: GPR281-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 09:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:25
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.4		mg/kg	0.24	0.029	1
Fluorene	0.21	J	mg/kg	0.24	0.023	1
Phenanthrene	0.70		mg/kg	0.14	0.029	1
Anthracene	0.24		mg/kg	0.14	0.046	1
Pyrene	0.55		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.42		mg/kg	0.14	0.026	1
Chrysene	0.47		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	0.58		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.51		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.32		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04
 Client ID: GPR281-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:05
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 21:49
 Analyst: JG
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.25	0.031	1
Fluorene	0.52		mg/kg	0.25	0.025	1
Phenanthrene	2.4		mg/kg	0.15	0.031	1
Anthracene	0.79		mg/kg	0.15	0.049	1
Pyrene	2.8		mg/kg	0.15	0.025	1
Benzo(a)anthracene	1.9		mg/kg	0.15	0.028	1
Chrysene	1.9		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	2.0		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.9		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	1.0		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-05
 Client ID: GPR281-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 22:13
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.068	J	mg/kg	0.18	0.023	1
Fluorene	0.051	J	mg/kg	0.18	0.018	1
Phenanthrene	0.16		mg/kg	0.11	0.023	1
Anthracene	0.042	J	mg/kg	0.11	0.036	1
Pyrene	0.32		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.11		mg/kg	0.11	0.021	1
Chrysene	0.36		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.17		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.10	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.086	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06 D
 Client ID: GPR281-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 10:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:42
 Analyst: MG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.93	0.11	5
Fluorene	0.092	J	mg/kg	0.93	0.090	5
Phenanthrene	0.30	J	mg/kg	0.56	0.11	5
Anthracene	ND		mg/kg	0.56	0.18	5
Pyrene	0.54	J	mg/kg	0.56	0.092	5
Benzo(a)anthracene	0.26	J	mg/kg	0.56	0.10	5
Chrysene	0.64		mg/kg	0.56	0.097	5
Benzo(b)fluoranthene	0.19	J	mg/kg	0.56	0.16	5
Benzo(a)pyrene	ND		mg/kg	0.74	0.23	5
Benzo(ghi)perylene	0.11	J	mg/kg	0.74	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07
 Client ID: GPR282-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:44
 Analyst: JG
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.4		mg/kg	0.21	0.026	1
Fluorene	0.69		mg/kg	0.21	0.020	1
Phenanthrene	4.3		mg/kg	0.12	0.026	1
Anthracene	1.3		mg/kg	0.12	0.041	1
Pyrene	3.8		mg/kg	0.12	0.021	1
Benzo(a)anthracene	2.2		mg/kg	0.12	0.024	1
Chrysene	1.8		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	2.2		mg/kg	0.12	0.035	1
Benzo(a)pyrene	1.8		mg/kg	0.17	0.051	1
Benzo(ghi)perylene	1.0		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:56
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.5		mg/kg	0.20	0.025	1
Fluorene	0.19	J	mg/kg	0.20	0.020	1
Phenanthrene	0.82		mg/kg	0.12	0.025	1
Anthracene	0.34		mg/kg	0.12	0.040	1
Pyrene	0.44		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.30		mg/kg	0.12	0.023	1
Chrysene	0.47		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.38		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.44		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.50		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09
 Client ID: GPR282-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:20
 Analyst: JG
 Percent Solids: 59%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.86		mg/kg	0.28	0.034	1
Fluorene	0.37		mg/kg	0.28	0.027	1
Phenanthrene	2.8		mg/kg	0.16	0.034	1
Anthracene	0.99		mg/kg	0.16	0.054	1
Pyrene	3.0		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.1		mg/kg	0.16	0.031	1
Chrysene	1.8		mg/kg	0.16	0.029	1
Benzo(b)fluoranthene	1.6		mg/kg	0.16	0.046	1
Benzo(a)pyrene	1.5		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	0.88		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10
 Client ID: GPR282-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 04:12
 Analyst: MG
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 17:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.2		mg/kg	0.26	0.031	1
Fluorene	0.38		mg/kg	0.26	0.025	1
Phenanthrene	1.7		mg/kg	0.15	0.031	1
Anthracene	0.52		mg/kg	0.15	0.050	1
Pyrene	1.6		mg/kg	0.15	0.025	1
Benzo(a)anthracene	0.96		mg/kg	0.15	0.029	1
Chrysene	1.0		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	1.3		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.2		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	0.71		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 14:32
 Analyst: JG
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7		mg/kg	0.27	0.033	1
Fluorene	1.5		mg/kg	0.27	0.027	1
Phenanthrene	4.5		mg/kg	0.16	0.033	1
Anthracene	1.5		mg/kg	0.16	0.054	1
Pyrene	4.4		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.0		mg/kg	0.16	0.031	1
Chrysene	2.2		mg/kg	0.16	0.028	1
Benzo(b)fluoranthene	2.2		mg/kg	0.16	0.046	1
Benzo(a)pyrene	2.0		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	1.3		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12 D
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 14:56
 Analyst: JG
 Percent Solids: 63%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.3		mg/kg	2.6	0.32	10
Fluorene	8.2		mg/kg	2.6	0.25	10
Phenanthrene	28.		mg/kg	1.6	0.32	10
Anthracene	9.6		mg/kg	1.6	0.51	10
Pyrene	26.		mg/kg	1.6	0.26	10
Benzo(a)anthracene	13.		mg/kg	1.6	0.29	10
Chrysene	12.		mg/kg	1.6	0.27	10
Benzo(b)fluoranthene	14.		mg/kg	1.6	0.44	10
Benzo(a)pyrene	12.		mg/kg	2.1	0.63	10
Benzo(ghi)perylene	5.9		mg/kg	2.1	0.30	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	41		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13
 Client ID: GPR282-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 15:20
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.6		mg/kg	0.58	0.070	1
Fluorene	0.67		mg/kg	0.58	0.056	1
Phenanthrene	2.4		mg/kg	0.35	0.070	1
Anthracene	0.85		mg/kg	0.35	0.11	1
Pyrene	0.81		mg/kg	0.35	0.058	1
Benzo(a)anthracene	0.50		mg/kg	0.35	0.065	1
Chrysene	0.53		mg/kg	0.35	0.060	1
Benzo(b)fluoranthene	0.58		mg/kg	0.35	0.098	1
Benzo(a)pyrene	0.52		mg/kg	0.46	0.14	1
Benzo(ghi)perylene	0.59		mg/kg	0.46	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14
 Client ID: GPR284-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 15:44
 Analyst: JG
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.2		mg/kg	0.22	0.027	1
Fluorene	0.35		mg/kg	0.22	0.021	1
Phenanthrene	1.0		mg/kg	0.13	0.027	1
Anthracene	0.39		mg/kg	0.13	0.043	1
Pyrene	1.9		mg/kg	0.13	0.022	1
Benzo(a)anthracene	1.5		mg/kg	0.13	0.025	1
Chrysene	1.3		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	1.6		mg/kg	0.13	0.037	1
Benzo(a)pyrene	1.4		mg/kg	0.18	0.054	1
Benzo(ghi)perylene	0.64		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15
 Client ID: GPR284-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 13:45
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:08
 Analyst: JG
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.23	0.028	1
Fluorene	0.45		mg/kg	0.23	0.022	1
Phenanthrene	1.4		mg/kg	0.14	0.028	1
Anthracene	0.58		mg/kg	0.14	0.045	1
Pyrene	2.0		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.8		mg/kg	0.14	0.026	1
Chrysene	1.7		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.2		mg/kg	0.14	0.038	1
Benzo(a)pyrene	2.0		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.2		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:32
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.65		mg/kg	0.18	0.023	1
Fluorene	0.35		mg/kg	0.18	0.018	1
Phenanthrene	1.0		mg/kg	0.11	0.022	1
Anthracene	0.18		mg/kg	0.11	0.036	1
Pyrene	0.91		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.41		mg/kg	0.11	0.021	1
Chrysene	1.1		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.45		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.32		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.25		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	58		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17 D
 Client ID: GPR284-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 16:56
 Analyst: JG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.93	J	mg/kg	1.1	0.13	5
Fluorene	ND		mg/kg	1.1	0.11	5
Phenanthrene	0.62	J	mg/kg	0.66	0.13	5
Anthracene	ND		mg/kg	0.66	0.21	5
Pyrene	0.42	J	mg/kg	0.66	0.11	5
Benzo(a)anthracene	0.37	J	mg/kg	0.66	0.12	5
Chrysene	0.56	J	mg/kg	0.66	0.11	5
Benzo(b)fluoranthene	0.38	J	mg/kg	0.66	0.18	5
Benzo(a)pyrene	0.29	J	mg/kg	0.88	0.27	5
Benzo(ghi)perylene	0.36	J	mg/kg	0.88	0.13	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18
 Client ID: GPR284-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:21
 Analyst: JG
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.92		mg/kg	0.20	0.024	1
Fluorene	0.25		mg/kg	0.20	0.019	1
Phenanthrene	0.47		mg/kg	0.12	0.024	1
Anthracene	0.25		mg/kg	0.12	0.038	1
Pyrene	1.2		mg/kg	0.12	0.020	1
Benzo(a)anthracene	1.2		mg/kg	0.12	0.022	1
Chrysene	1.0		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	1.2		mg/kg	0.12	0.033	1
Benzo(a)pyrene	1.1		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.48		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	97		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 17:45
 Analyst: JG
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.2		mg/kg	0.23	0.028	1
Fluorene	0.69		mg/kg	0.23	0.022	1
Phenanthrene	2.3		mg/kg	0.14	0.028	1
Anthracene	0.78		mg/kg	0.14	0.044	1
Pyrene	3.2		mg/kg	0.14	0.022	1
Benzo(a)anthracene	2.8		mg/kg	0.14	0.025	1
Chrysene	2.5		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	3.5		mg/kg	0.14	0.038	1
Benzo(a)pyrene	3.0		mg/kg	0.18	0.055	1
Benzo(ghi)perylene	1.4		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20
 Client ID: GPR284-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:35
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:09
 Analyst: JG
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.2		mg/kg	0.20	0.025	1
Fluorene	0.45		mg/kg	0.20	0.020	1
Phenanthrene	2.3		mg/kg	0.12	0.025	1
Anthracene	0.72		mg/kg	0.12	0.040	1
Pyrene	3.3		mg/kg	0.12	0.020	1
Benzo(a)anthracene	2.8		mg/kg	0.12	0.023	1
Chrysene	2.4		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	3.1		mg/kg	0.12	0.034	1
Benzo(a)pyrene	2.8		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	1.3		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21
 Client ID: GPR284-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:40
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 18:33
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.3		mg/kg	0.24	0.029	1
Fluorene	0.26		mg/kg	0.24	0.023	1
Phenanthrene	1.7		mg/kg	0.14	0.029	1
Anthracene	0.66		mg/kg	0.14	0.047	1
Pyrene	3.8		mg/kg	0.14	0.024	1
Benzo(a)anthracene	3.4		mg/kg	0.14	0.027	1
Chrysene	3.0		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.8		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.2		mg/kg	0.19	0.059	1
Benzo(ghi)perylene	1.6		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	110		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22 D
 Client ID: GPR284-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 17:49
 Analyst: MG
 Percent Solids: 57%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.7		mg/kg	1.4	0.18	5
Fluorene	0.98	J	mg/kg	1.4	0.14	5
Phenanthrene	4.7		mg/kg	0.87	0.18	5
Anthracene	2.7		mg/kg	0.87	0.28	5
Pyrene	23.		mg/kg	0.87	0.14	5
Benzo(a)anthracene	20.		mg/kg	0.87	0.16	5
Chrysene	17.		mg/kg	0.87	0.15	5
Benzo(b)fluoranthene	19.		mg/kg	0.87	0.24	5
Benzo(a)pyrene	17.		mg/kg	1.2	0.35	5
Benzo(ghi)perylene	6.6		mg/kg	1.2	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-23
 Client ID: GPR284-14-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:55
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 19:21
 Analyst: JG
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.8		mg/kg	0.19	0.023	1
Fluorene	0.65		mg/kg	0.19	0.018	1
Phenanthrene	2.7		mg/kg	0.11	0.023	1
Anthracene	0.57		mg/kg	0.11	0.037	1
Pyrene	3.3		mg/kg	0.11	0.019	1
Benzo(a)anthracene	2.5		mg/kg	0.11	0.021	1
Chrysene	2.4		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	2.7		mg/kg	0.11	0.032	1
Benzo(a)pyrene	2.3		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	1.2		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	49		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24
 Client ID: GPR284-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 15:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 19:45
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.049	J	mg/kg	0.19	0.023	1
Fluorene	0.038	J	mg/kg	0.19	0.018	1
Phenanthrene	2.0		mg/kg	0.11	0.023	1
Anthracene	0.52		mg/kg	0.11	0.037	1
Pyrene	3.3		mg/kg	0.11	0.019	1
Benzo(a)anthracene	2.4		mg/kg	0.11	0.021	1
Chrysene	2.4		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	2.7		mg/kg	0.11	0.032	1
Benzo(a)pyrene	2.0		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	1.1		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25
 Client ID: DUP-52
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/08/22 20:09
 Analyst: JG
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/07/22 18:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.1		mg/kg	0.23	0.028	1
Fluorene	0.56		mg/kg	0.23	0.023	1
Phenanthrene	1.5		mg/kg	0.14	0.028	1
Anthracene	0.64		mg/kg	0.14	0.045	1
Pyrene	3.2		mg/kg	0.14	0.023	1
Benzo(a)anthracene	2.9		mg/kg	0.14	0.026	1
Chrysene	2.7		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	3.6		mg/kg	0.14	0.039	1
Benzo(a)pyrene	3.3		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	1.5		mg/kg	0.19	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 12/08/22 00:56
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/07/22 05:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10 Batch: WG1720179-1					
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
2-Fluorophenol	75		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	84		30-120
2,4,6-Tribromophenol	91		10-136
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/08/22 10:56
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/07/22 18:22

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 11-25 Batch: WG1720590-1					
Naphthalene	ND		mg/kg	0.17	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	91		30-120
4-Terphenyl-d14	91		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

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 Batch: WG1720179-2 WG1720179-3								
Naphthalene	61		58		40-140	5		50
Fluorene	56		56		40-140	0		50
Phenanthrene	59		58		40-140	2		50
Anthracene	62		60		40-140	3		50
Pyrene	60		57		35-142	5		50
Benzo(a)anthracene	57		58		40-140	2		50
Chrysene	54		54		40-140	0		50
Benzo(b)fluoranthene	55		56		40-140	2		50
Benzo(a)pyrene	57		60		40-140	5		50
Benzo(ghi)perylene	60		59		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	62		58		25-120
Phenol-d6	63		59		10-120
Nitrobenzene-d5	54		53		23-120
2-Fluorobiphenyl	66		64		30-120
2,4,6-Tribromophenol	69		70		10-136
4-Terphenyl-d14	58		61		18-120



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 11-25 Batch: WG1720590-2 WG1720590-3								
Naphthalene	79		77		40-140	3		50
Fluorene	83		80		40-140	4		50
Phenanthrene	77		74		40-140	4		50
Anthracene	80		77		40-140	4		50
Pyrene	83		84		35-142	1		50
Benzo(a)anthracene	84		80		40-140	5		50
Chrysene	81		78		40-140	4		50
Benzo(b)fluoranthene	91		89		40-140	2		50
Benzo(a)pyrene	89		88		40-140	1		50
Benzo(ghi)perylene	84		80		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	110		108		23-120
2-Fluorobiphenyl	91		86		30-120
4-Terphenyl-d14	83		84		18-120

METALS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01

Date Collected: 12/06/22 09:30

Client ID: GPR281-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

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	284		mg/kg	2.80	0.150	1	12/07/22 20:26	12/08/22 11:07	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02

Date Collected: 12/06/22 09:45

Client ID: GPR281-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	33.7		mg/kg	2.22	0.119	1	12/07/22 20:26	12/08/22 10:52	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-03

Date Collected: 12/06/22 09:55

Client ID: GPR281-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	206		mg/kg	2.79	0.150	1	12/07/22 20:26	12/08/22 10:57	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-04

Date Collected: 12/06/22 10:05

Client ID: GPR281-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	363		mg/kg	2.98	0.160	1	12/07/22 20:26	12/08/22 11:02	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-05

Date Collected: 12/06/22 10:20

Client ID: GPR281-11-SS01

Date Received: 12/06/22

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	24.4		mg/kg	2.24	0.120	1	12/07/22 20:26	12/08/22 11:40	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-06

Date Collected: 12/06/22 10:30

Client ID: GPR281-12-SS01

Date Received: 12/06/22

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	162		mg/kg	11.2	0.598	5	12/07/22 20:26	12/12/22 11:39	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07
 Client ID: GPR282-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:30
 Date Received: 12/06/22
 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	1520		mg/kg	2.42	0.130	1	12/07/22 20:26	12/08/22 11:51	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08
 Client ID: GPR282-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:40
 Date Received: 12/06/22
 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	184		mg/kg	2.44	0.131	1	12/07/22 20:26	12/08/22 11:56	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09
 Client ID: GPR282-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 11:50
 Date Received: 12/06/22
 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	412		mg/kg	3.28	0.176	1	12/07/22 20:26	12/08/22 12:01	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10
 Client ID: GPR282-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	493		mg/kg	3.06	0.164	1	12/07/22 20:26	12/08/22 12:06	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-11
 Client ID: GPR282-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:10
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	343		mg/kg	3.21	0.172	1	12/07/22 20:26	12/08/22 12:10	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12
 Client ID: GPR282-10-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 12:20
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	411		mg/kg	3.09	0.166	1	12/07/22 20:26	12/08/22 13:49	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-13

Date Collected: 12/06/22 12:30

Client ID: GPR282-12-SS01

Date Received: 12/06/22

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	295		mg/kg	2.46	0.132	1	12/07/22 20:26	12/08/22 13:55	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14

Date Collected: 12/06/22 13:30

Client ID: GPR284-01-SS01

Date Received: 12/06/22

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	112		mg/kg	2.64	0.142	1	12/07/22 20:26	12/08/22 13:59	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15

Date Collected: 12/06/22 13:45

Client ID: GPR284-03-SS01

Date Received: 12/06/22

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	63.3		mg/kg	2.62	0.140	1	12/07/22 20:26	12/08/22 13:14	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-16
 Client ID: GPR284-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:00
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	125		mg/kg	2.26	0.121	1	12/07/22 20:26	12/08/22 13:19	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-17

Date Collected: 12/06/22 14:10

Client ID: GPR284-07-SS01

Date Received: 12/06/22

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	186		mg/kg	2.59	0.139	1	12/07/22 20:26	12/08/22 13:24	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-18

Date Collected: 12/06/22 14:20

Client ID: GPR284-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	92.5		mg/kg	2.29	0.123	1	12/07/22 20:26	12/08/22 13:29	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19
 Client ID: GPR284-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:30
 Date Received: 12/06/22
 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	89.5		mg/kg	2.71	0.145	1	12/07/22 20:26	12/08/22 13:34	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-20

Date Collected: 12/06/22 14:35

Client ID: GPR284-10-SS01

Date Received: 12/06/22

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	95.3		mg/kg	2.33	0.125	1	12/07/22 20:26	12/08/22 13:39	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21

Date Collected: 12/06/22 14:40

Client ID: GPR284-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	59.1		mg/kg	2.80	0.150	1	12/08/22 06:10	12/08/22 13:46	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-22
 Client ID: GPR284-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/06/22 14:50
 Date Received: 12/06/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	87.6		mg/kg	3.38	0.181	1	12/08/22 06:10	12/08/22 14:41	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-23

Date Collected: 12/06/22 14:55

Client ID: GPR284-14-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	30.1		mg/kg	2.16	0.116	1	12/08/22 06:10	12/08/22 14:46	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-24

Date Collected: 12/06/22 15:00

Client ID: GPR284-15-SS01

Date Received: 12/06/22

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	5090		mg/kg	2.22	0.119	1	12/08/22 06:10	12/08/22 14:50	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25

Date Collected: 12/06/22 11:00

Client ID: DUP-52

Date Received: 12/06/22

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	69.8		mg/kg	2.72	0.146	1	12/08/22 06:10	12/08/22 14:55	EPA 3050B	1,6010D	DMB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1720509-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/07/22 20:26	12/08/22 10:43	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-25 Batch: WG1720681-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/08/22 06:10	12/08/22 13:24	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1720509-2 SRM Lot Number: D116-540								
Lead, Total	100		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 21-25 Batch: WG1720681-2 SRM Lot Number: D116-540								
Lead, Total	95		-		83-117	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1720509-3 QC Sample: L2268455-01 Client ID: GPR281-01-SS01												
Lead, Total	284	60.8	292	13	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-25 QC Batch ID: WG1720681-3 QC Sample: L2268455-21 Client ID: GPR284-11-SS01												
Lead, Total	59.1	59.7	118	99		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1720509-4 QC Sample: L2268455-01 Client ID: GPR281-01-SS01						
Lead, Total	284	281	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 21-25 QC Batch ID: WG1720681-4 QC Sample: L2268455-21 Client ID: GPR284-11-SS01						
Lead, Total	59.1	66.2	mg/kg	11		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-01

Date Collected: 12/06/22 09:30

Client ID: GPR281-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.3		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-02

Date Collected: 12/06/22 09:45

Client ID: GPR281-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-03

Date Collected: 12/06/22 09:55

Client ID: GPR281-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.1		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-04

Date Collected: 12/06/22 10:05

Client ID: GPR281-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	65.6		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-05

Date Collected: 12/06/22 10:20

Client ID: GPR281-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-06

Date Collected: 12/06/22 10:30

Client ID: GPR281-12-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-07

Date Collected: 12/06/22 11:30

Client ID: GPR282-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-08

Date Collected: 12/06/22 11:40

Client ID: GPR282-03-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-09

Date Collected: 12/06/22 11:50

Client ID: GPR282-05-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58.5		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-10

Date Collected: 12/06/22 12:00

Client ID: GPR282-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	64.3		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-11

Date Collected: 12/06/22 12:10

Client ID: GPR282-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.1		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-12

Date Collected: 12/06/22 12:20

Client ID: GPR282-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	63.2		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-13

Date Collected: 12/06/22 12:30

Client ID: GPR282-12-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/08/22 07:29	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-14

Date Collected: 12/06/22 13:30

Client ID: GPR284-01-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.9		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-15

Date Collected: 12/06/22 13:45

Client ID: GPR284-03-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-16

Date Collected: 12/06/22 14:00

Client ID: GPR284-05-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-17

Date Collected: 12/06/22 14:10

Client ID: GPR284-07-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-18

Date Collected: 12/06/22 14:20

Client ID: GPR284-08-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-19

Date Collected: 12/06/22 14:30

Client ID: GPR284-09-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.5		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-20

Date Collected: 12/06/22 14:35

Client ID: GPR284-10-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-21

Date Collected: 12/06/22 14:40

Client ID: GPR284-11-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.8		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-22

Date Collected: 12/06/22 14:50

Client ID: GPR284-13-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	57.4		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-23

Date Collected: 12/06/22 14:55

Client ID: GPR284-14-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**SAMPLE RESULTS**

Lab ID: L2268455-24

Date Collected: 12/06/22 15:00

Client ID: GPR284-15-SS01

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

SAMPLE RESULTS

Lab ID: L2268455-25

Date Collected: 12/06/22 11:00

Client ID: DUP-52

Date Received: 12/06/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.1		%	0.100	NA	1	-	12/08/22 07:43	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268455

Report Date: 12/13/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1720705-1 QC Sample: L2268455-01 Client ID: GPR281-01-SS01						
Solids, Total	68.3	64.8	%	5		20
General Chemistry - Westborough Lab Associated sample(s): 14-25 QC Batch ID: WG1720706-1 QC Sample: L2268455-14 Client ID: GPR284-01-SS01						
Solids, Total	74.9	75.0	%	0		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**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(*)
L2268455-01A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-01B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-01C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-01D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-01F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-02A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-02B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-02C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-02D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-02F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-03A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-03B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-03C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-03D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-03F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-04A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-04B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-04C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-04D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-04F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-05A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-05B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-05C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-05D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-05F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-06A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-06B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-06C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-06D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-06F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-07A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-07B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-07C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-07D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-07F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-08A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-08B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-08C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-08D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-08F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-09A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-09B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-09C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-09D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-09F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-10A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-10B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-10C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-10D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-10F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-11A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-11B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-11C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-11D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-11F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-12A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268455-12B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-12C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-12D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-12F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-13A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-13B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-13C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-13D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-13F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-14A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-14B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-14C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-14D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-14F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-15A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-15B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-15C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-15D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-15F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-16A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268455-16B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-16C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260H(14),PA-8260HLW(14)
L2268455-16D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-16F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-17A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-17B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-17C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-17D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-17F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-18A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-18B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-18C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-18D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12132215:37
Lab Number: L2268455
Report Date: 12/13/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-18E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-18F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-19A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-19B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-19C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-19D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-19E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-19F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-20A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-20B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-20C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-20D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-20F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-21A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-21B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-21C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-21D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-21F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-22A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-22B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-22C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-22D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-22F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-23A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-23B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268455**Project Number:** 200.00135.006**Report Date:** 12/13/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268455-23C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-23D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-23F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-24A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2268455-24B	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-24C	Vial water preserved	B	NA		3.5	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-24D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L2268455-24E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		PB-TI(180)
L2268455-24F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		PA-PAH(14)
L2268455-25A	Vial MeOH preserved	A	NA		3.9	Y	Absent		PA-8260HLW(14)
L2268455-25B	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-25C	Vial water preserved	A	NA		3.9	Y	Absent	07-DEC-22 14:30	PA-8260HLW(14)
L2268455-25D	Plastic 2oz unpreserved for TS	A	NA		3.9	Y	Absent		TS(7)
L2268455-25E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.9	Y	Absent		PB-TI(180)
L2268455-25F	Glass 120ml/4oz unpreserved	A	NA		3.9	Y	Absent		PA-PAH(14)
L2268455-26A	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2268455-26B	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2268455-26C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2268455-26D	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268455
Report Date: 12/13/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268455

Project Number: 200.00135.006

Report Date: 12/13/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3



Project Information

Project Name: Philadelphia Refinery
 Project Location: Philadelphia, PA
 Project #: 200.00135.006
 Project Manager: William Schmidt
 ALPHA Quote #: ~~17101~~ ~~17833~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
 Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to 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: 12/6/22 ALPHA Job #: L2268455

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEx Add'l Deliverables
 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											TOTAL # BOTTLES			
		Date	Time																			
68455-01	G-PR281-01-SS01	12/06	0930	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"/>	4	
-02	G-PR281-07-SS01		0945			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
-03	G-PR281-08-SS01		0955			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-04	G-PR281-10-SS01		1005			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
-05	G-PR281-11-SS01		1020			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-06	G-PR281-12-SS01		1030			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
-07	C-PR282-01-SS01		1130			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-08	C-PR282-03-SS01		1140			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
-09	G-PR282-05-SS01		1150			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
-10	G-PR282-07-SS01		1200			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/16/22 15:00	<i>[Signature]</i>	12/16/22 15:00
<i>[Signature]</i>	12/16/22 15:00	<i>[Signature]</i>	12/16/22 15:00

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



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@terrphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~18554~~ ~~18554~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

Date Rec'd in Lab: 12/6/22

ALPHA Job #: 12268485

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	ANALYSIS										SAMPLE HANDLING	TOTAL # BOTTLES			
		Date	Time						1	2	3	4	5	6	7	8	9	10			11	12	
68455 -11	GPR 282-08-5501	12/6	1210	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"/>	4
-12	GPR 282-10-5501		1220			<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"/>	2
-13	GPR 282-12-5501		1230			<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"/>	4
-14	GPR 284-01-5501		1330			<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"/>	2
-15	GPR 284-03-5501		1345			<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"/>	4
-16	GPR 284-05-5501		1400			<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"/>	2
-17	GPR 284-07-5501		1410			<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"/>	4
-18	GPR 284-08-5501		1420			<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"/>	2
-19	GPR 284-09-5501		1430			<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"/>	4
-20	GPR 284-10-5501		1435			<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"/>	2

Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
68455 -11	GPR 282-08-5501	12/6	1210	S	TS
-12	GPR 282-10-5501		1220		
-13	GPR 282-12-5501		1230		
-14	GPR 284-01-5501		1330		
-15	GPR 284-03-5501		1345		
-16	GPR 284-05-5501		1400		
-17	GPR 284-07-5501		1410		
-18	GPR 284-08-5501		1420		
-19	GPR 284-09-5501		1430		
-20	GPR 284-10-5501		1435		

Container Type

Preservative

G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:

Date/Time

Received By:

Date/Time

W. Dolan AAL 12/6/22 1:00 PM D. Dolan AAL 12/6/22 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.

W. Dolan
 12/7/22
 0135
 12/7/22 0135



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:
 Email: William.Schmidt@ransomenv.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1761~~ ~~1783~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Date Rec'd in Lab: 12/6/22 ALPHA Job #: L2268455

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											TOTAL # BOTTLES			
		Date	Time																			
68455 -21	GPR284-11-5501	12/6	1440	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"/>	4
-22	GPR284-13-5501		1450	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"/>	2
-23	GPR284-14-5501		1455	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"/>	4
-24	GPR284-15-5501		1500	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"/>	2
-25	DUP-5Z		-	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"/>	4
-26	TB-221206			W	TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Sample Specific Comments

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/1/2022	<i>[Signature]</i>	12/6/22 1505
<i>[Signature]</i>	12/1/22/800	<i>[Signature]</i>	6/180
<i>[Signature]</i>	6/2/01	<i>[Signature]</i>	12-2-22 200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

PADEP Short List Analytical Suites per Table III-5:

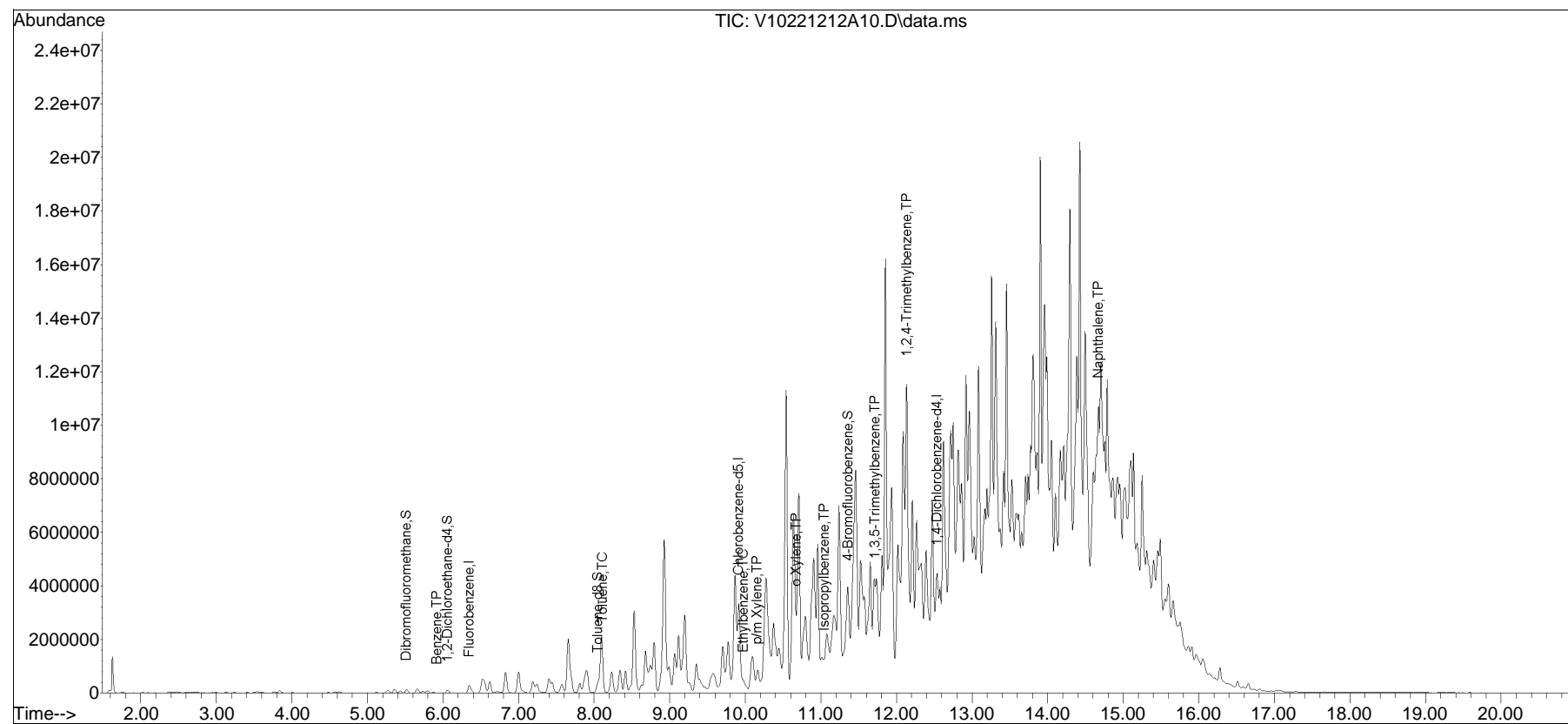
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
 2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
 5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene
-

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221212A\
Data File : V10221212A10.D
Acq On : 12 Dec 2022 4:09 pm
Operator : VOA110:NLK
Sample : L2268455-11,31,4.26,5,,C,R2F
Misc : WG1722625,ICAL19281
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 13 08:48:23 2022
Quant Method : I:\VOLATILES\VOA110\2022\221212A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V10221212A01.D•

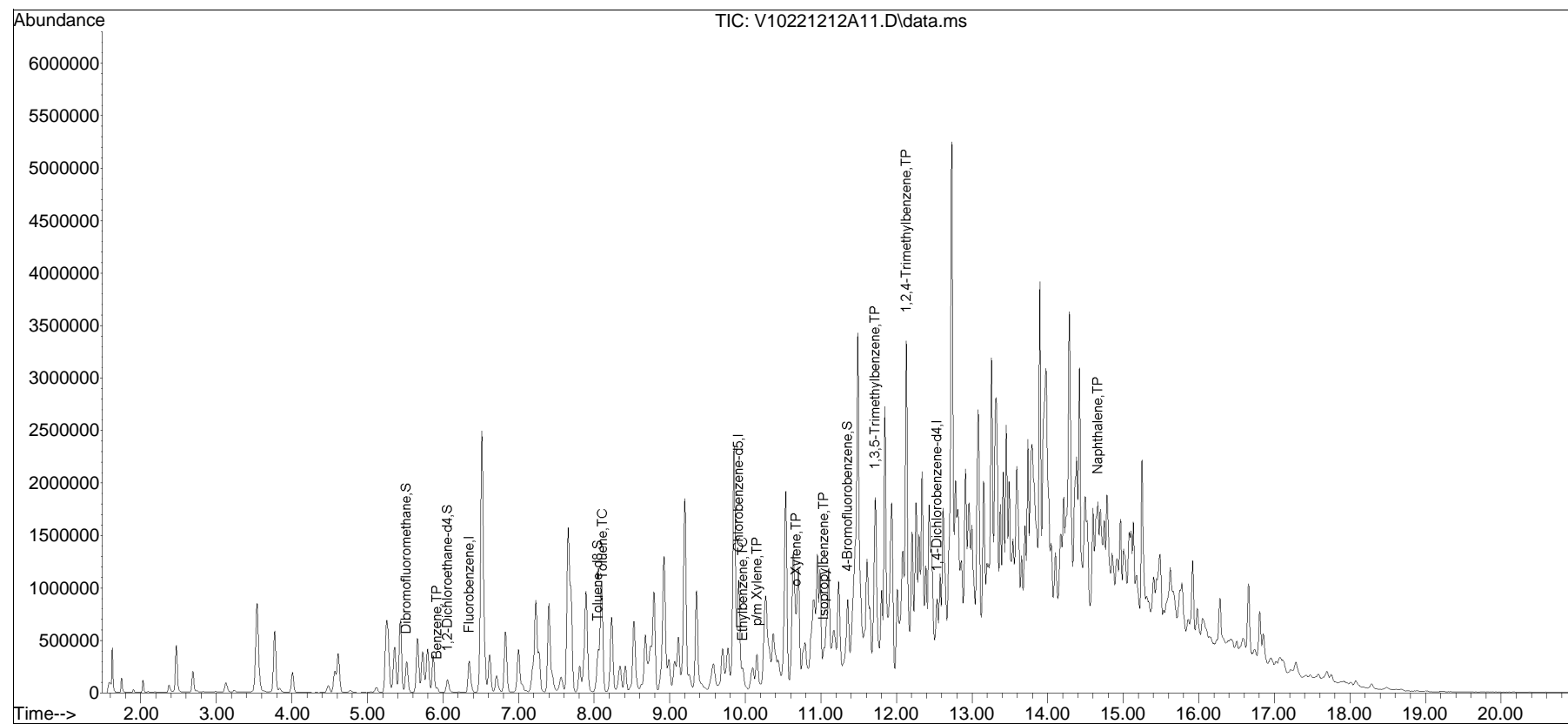


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221212A\
Data File : V10221212A11.D
Acq On : 12 Dec 2022 4:36 pm
Operator : VOA110:NLK
Sample : L2268455-16,31,3.95,5,,C,R2F
Misc : WG1722625,ICAL19281
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 13 08:48:45 2022
Quant Method : I:\VOLATILES\VOA110\2022\221212A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V10221212A01.D•





ANALYTICAL REPORT

Lab Number:	L2268803
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/14/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268803-01	GPR276-01-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:00	12/07/22
L2268803-02	GPR276-03-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:10	12/07/22
L2268803-03	GPR276-05-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:15	12/07/22
L2268803-04	GPR276-06-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:30	12/07/22
L2268803-05	GPR276-07-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:40	12/07/22
L2268803-06	GPR276-11-SS01	SOIL	PHILADELPHIA, PA	12/07/22 10:50	12/07/22
L2268803-07	GPR276-12-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:00	12/07/22
L2268803-08	GPR276-13-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:15	12/07/22
L2268803-09	GPR276-15-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:30	12/07/22
L2268803-10	GPR276-16-SS01	SOIL	PHILADELPHIA, PA	12/07/22 11:40	12/07/22
L2268803-11	GPR276-17-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:00	12/07/22
L2268803-12	GPR285-01-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:10	12/07/22
L2268803-13	GPR285-02-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:20	12/07/22
L2268803-14	GPR285-03-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:30	12/07/22
L2268803-15	GPR285-07-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:40	12/07/22
L2268803-16	GPR285-08-SS01	SOIL	PHILADELPHIA, PA	12/07/22 13:50	12/07/22
L2268803-17	GPR285-11-SS01	SOIL	PHILADELPHIA, PA	12/07/22 14:00	12/07/22
L2268803-18	GPR285-13-SS01	SOIL	PHILADELPHIA, PA	12/07/22 14:10	12/07/22
L2268803-19	DUP-53	SOIL	PHILADELPHIA, PA	12/07/22 00:00	12/07/22
L2268803-20	FB-221207-1	WATER	PHILADELPHIA, PA	12/07/22 12:00	12/07/22
L2268803-21	FB-221207-2	WATER	PHILADELPHIA, PA	12/07/22 14:10	12/07/22
L2268803-22	TB-221207	WATER	PHILADELPHIA, PA	12/07/22 00:00	12/07/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

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

L2268803-01: 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.

L2268803-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (139%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-02: 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.

L2268803-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-09 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.

L2268803-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (159%); 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.

L2268803-10: The surrogate recovery is outside the method acceptance criteria for and dibromofluoromethane (50%) due to interference with the Internal Standard.

L2268803-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (138%) and 4-bromofluorobenzene (1010%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative (continued)

L2268803-11: 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.

L2268803-12: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (64%) due to interference with the Internal Standard.

L2268803-18D2: The surrogate recovery is outside the acceptance criteria for 1,2-dichloroethane-d4 (133%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2268803-18D2: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (60%) due to interference with the Internal Standard.

L2268803-18D2: The internal standard (IS) response for fluorobenzene (221%) was above 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.

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2268803-20 through -22, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics by SIM

The WG1721171-1 Method Blank, associated with L2268803-20 and -21, has a concentration above the reporting limit for Benzo(a)anthracene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

Total Metals

L2268803-20: The Field Blank has a result for lead present above the reporting limit. The sample was verified

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Case Narrative (continued)

as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 12/14/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 09:54
 Analyst: NLK
 Percent Solids: 60%

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	1
Benzene	0.040	J	mg/kg	0.064	0.021	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	1
Toluene	0.68		mg/kg	0.13	0.069	1
1,2-Dibromoethane	ND		mg/kg	0.064	0.037	1
Ethylbenzene	0.060	J	mg/kg	0.13	0.018	1
p/m-Xylene	0.11	J	mg/kg	0.25	0.071	1
o-Xylene	0.050	J	mg/kg	0.13	0.037	1
Xylenes, Total	0.16	J	mg/kg	0.13	0.037	1
Isopropylbenzene	0.10	J	mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.25	0.024	1
1,2,4-Trimethylbenzene	0.076	J	mg/kg	0.25	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	139	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 21:53
 Analyst: NLK
 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	0.23	0.023	1
Benzene	0.96		mg/kg	0.056	0.019	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	1
Toluene	1.4		mg/kg	0.11	0.061	1
1,2-Dibromoethane	ND		mg/kg	0.056	0.033	1
Ethylbenzene	0.51		mg/kg	0.11	0.016	1
p/m-Xylene	1.3		mg/kg	0.23	0.063	1
o-Xylene	0.47		mg/kg	0.11	0.033	1
Xylenes, Total	1.8		mg/kg	0.11	0.033	1
Isopropylbenzene	1.1		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.30		mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.77		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 16:45
 Analyst: AJK
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	0.00040	J	mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0010	J	mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00050	1
Ethylbenzene	0.00026	J	mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0011	J	mg/kg	0.0034	0.00095	1
o-Xylene	0.0016	J	mg/kg	0.0017	0.00049	1
Xylenes, Total	0.0027	J	mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.031		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0021	J	mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.0019	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	138	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 10:40
 Analyst: NLK
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0038	0.00038	1
Benzene	ND		mg/kg	0.00095	0.00032	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00049	1
Toluene	ND		mg/kg	0.0019	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00095	0.00056	1
Ethylbenzene	ND		mg/kg	0.0019	0.00027	1
p/m-Xylene	ND		mg/kg	0.0038	0.0011	1
o-Xylene	ND		mg/kg	0.0019	0.00055	1
Xylenes, Total	ND		mg/kg	0.0019	0.00055	1
Isopropylbenzene	ND		mg/kg	0.0019	0.00021	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0038	0.00037	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0038	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04
 Client ID: GPR276-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:03
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.00027	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0039		mg/kg	0.0022	0.00062	1
o-Xylene	0.0013		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0052		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00047	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0067		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0033		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05
 Client ID: GPR276-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:26
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	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	0.00051	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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06
 Client ID: GPR276-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 11:49
 Analyst: NLK
 Percent Solids: 64%

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	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00093	1
o-Xylene	0.00062	J	mg/kg	0.0016	0.00048	1
Xylenes, Total	0.00062	J	mg/kg	0.0016	0.00048	1
Isopropylbenzene	0.00046	J	mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	0.00063	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.0022	J	mg/kg	0.0033	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	182	Q	70-130
Dibromofluoromethane	116		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 22:15
 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	ND		mg/kg	0.28	0.028	1
Benzene	7.9		mg/kg	0.070	0.023	1
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	1
Toluene	4.8		mg/kg	0.14	0.076	1
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	1
Ethylbenzene	4.2		mg/kg	0.14	0.020	1
p/m-Xylene	11.		mg/kg	0.28	0.078	1
o-Xylene	0.72		mg/kg	0.14	0.040	1
Xylenes, Total	12.		mg/kg	0.14	0.040	1
Isopropylbenzene	1.4		mg/kg	0.14	0.015	1
1,3,5-Trimethylbenzene	0.90		mg/kg	0.28	0.027	1
1,2,4-Trimethylbenzene	2.8		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 12:35
 Analyst: NLK
 Percent Solids: 66%

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	ND		mg/kg	0.0032	0.00091	1
o-Xylene	ND		mg/kg	0.0016	0.00047	1
Xylenes, Total	ND		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	106		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09
 Client ID: GPR276-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 22:38
 Analyst: NLK
 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	0.11	0.011	1
Benzene	0.083		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	0.037	J	mg/kg	0.056	0.014	1
Toluene	0.27		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.087		mg/kg	0.056	0.0078	1
p/m-Xylene	0.36		mg/kg	0.11	0.031	1
o-Xylene	0.041	J	mg/kg	0.056	0.016	1
Xylenes, Total	0.40	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.26		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.066	J	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	159	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 23:24
 Analyst: NLK
 Percent Solids: 68%

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	0.014		mg/kg	0.00090	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	0.013		mg/kg	0.0018	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00090	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.033		mg/kg	0.0036	0.0010	1
o-Xylene	0.011		mg/kg	0.0018	0.00052	1
Xylenes, Total	0.044		mg/kg	0.0018	0.00052	1
Isopropylbenzene	0.26		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	0.013		mg/kg	0.0036	0.00035	1
1,2,4-Trimethylbenzene	0.024		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	138	Q	70-130
4-Bromofluorobenzene	1010	Q	70-130
Dibromofluoromethane	50	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11
 Client ID: GPR276-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 23:01
 Analyst: NLK
 Percent Solids: 64%

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	0.17		mg/kg	0.059	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.030	1
Toluene	1.0		mg/kg	0.12	0.064	1
1,2-Dibromoethane	ND		mg/kg	0.059	0.035	1
Ethylbenzene	0.32		mg/kg	0.12	0.017	1
p/m-Xylene	1.2		mg/kg	0.24	0.066	1
o-Xylene	0.37		mg/kg	0.12	0.034	1
Xylenes, Total	1.6		mg/kg	0.12	0.034	1
Isopropylbenzene	1.4		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.31		mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.99		mg/kg	0.24	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	152	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 03:15
 Analyst: JIC
 Percent Solids: 71%

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	4.0		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	12.		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	7.4		mg/kg	0.11	0.015	1
p/m-Xylene	21.		mg/kg	0.22	0.061	1
o-Xylene	6.4		mg/kg	0.11	0.032	1
Xylenes, Total	27.		mg/kg	0.11	0.032	1
Isopropylbenzene	4.1		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	30.		mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	28.		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	64	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13
 Client ID: GPR285-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:20
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:30
 Analyst: JIC
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	0.00026	J	mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00084	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	0.00036	J	mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00087	1
o-Xylene	ND		mg/kg	0.0016	0.00045	1
Xylenes, Total	ND		mg/kg	0.0016	0.00045	1
Isopropylbenzene	0.00021	J	mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.00077	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	0.00063	J	mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14
 Client ID: GPR285-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:52
 Analyst: JIC
 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	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D2
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 17:13
 Analyst: AJK
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.88	0.089	5
Benzene	12.		mg/kg	0.22	0.073	5
1,2-Dichloroethane	ND		mg/kg	0.44	0.11	5
Toluene	17.		mg/kg	0.44	0.24	5
1,2-Dibromoethane	ND		mg/kg	0.22	0.13	5
Ethylbenzene	51.		mg/kg	0.44	0.062	5
p/m-Xylene	88.		mg/kg	0.88	0.25	5
o-Xylene	6.5		mg/kg	0.44	0.13	5
Xylenes, Total	94.		mg/kg	0.44	0.13	5
Isopropylbenzene	18.		mg/kg	0.44	0.048	5
1,3,5-Trimethylbenzene	120		mg/kg	0.88	0.085	5
1,2,4-Trimethylbenzene	240	E	mg/kg	0.88	0.15	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:15
 Analyst: JIC
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

1,2,4-Trimethylbenzene	210		mg/kg	3.5	0.59	20
------------------------	-----	--	-------	-----	------	----

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16
 Client ID: GPR285-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:38
 Analyst: JIC
 Percent Solids: 71%

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17
 Client ID: GPR285-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:01
 Analyst: JIC
 Percent Solids: 69%

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	0.00080	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00087	1
1,2-Dibromoethane	ND		mg/kg	0.00080	0.00047	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	108		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D2
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 17:40
 Analyst: AJK
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.42	0.043	2
Benzene	1.1		mg/kg	0.11	0.035	2
1,2-Dichloroethane	ND		mg/kg	0.21	0.054	2
Toluene	6.9		mg/kg	0.21	0.12	2
1,2-Dibromoethane	ND		mg/kg	0.11	0.062	2
Ethylbenzene	23.		mg/kg	0.21	0.030	2
p/m-Xylene	34.		mg/kg	0.42	0.12	2
o-Xylene	5.0		mg/kg	0.21	0.062	2
Xylenes, Total	39.		mg/kg	0.21	0.062	2
Isopropylbenzene	12.		mg/kg	0.21	0.023	2
1,3,5-Trimethylbenzene	89.	E	mg/kg	0.42	0.041	2
1,2,4-Trimethylbenzene	94.	E	mg/kg	0.42	0.071	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	133	Q	70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	60	Q	70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:24
 Analyst: JIC
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,3,5-Trimethylbenzene	80.		mg/kg	4.2	0.41	20
1,2,4-Trimethylbenzene	80.		mg/kg	4.2	0.71	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19
 Client ID: DUP-53
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:47
 Analyst: JIC
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	ND		mg/kg	0.00086	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00094	1
1,2-Dibromoethane	ND		mg/kg	0.00086	0.00051	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0035	0.00097	1
o-Xylene	ND		mg/kg	0.0017	0.00050	1
Xylenes, Total	ND		mg/kg	0.0017	0.00050	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0035	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:26
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 09:30
 Analyst: MJV

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	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:37
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 09:50
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-22
 Client ID: TB-221207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:48
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-22
 Client ID: TB-221207
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/09/22 10:10
 Analyst: MJV

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	105		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 20-22 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 20:21
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,07,09,11 Batch: WG1722648-5					
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	108		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/12/22 20:21
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1722651-5					
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	107		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 09:31
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-06,08,13-14,16-17,19 Batch: WG1722682-5					
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	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 09:31
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,15,18 Batch: WG1722683-5					
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	108		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/09/22 09:10
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 20-22 Batch: WG1722693-5					
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	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 10:51
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1722945-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/13/22 10:51
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15,18 Batch: WG1722950-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 18:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1723094-5					
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	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

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: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,07,09,11 Batch: WG1722648-3 WG1722648-4								
Methyl tert butyl ether	91		91		66-130	0		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		87		70-130	1		30
Toluene	90		88		70-130	2		30
1,2-Dibromoethane	83		84		70-130	1		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		85		70-130	6		30
o-Xylene	88		83		70-130	6		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	93		89		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		102		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	109		110		70-130
Dibromofluoromethane	97		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1722651-3 WG1722651-4								
Methyl tert butyl ether	91		91		66-130	0		30
Benzene	89		88		70-130	1		30
1,2-Dichloroethane	88		87		70-130	1		30
Toluene	90		88		70-130	2		30
1,2-Dibromoethane	83		84		70-130	1		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		85		70-130	6		30
o-Xylene	88		83		70-130	6		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	93		89		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		102		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	109		110		70-130
Dibromofluoromethane	97		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-06,08,13-14,16-17,19 Batch: WG1722682-3 WG1722682-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	86		86		70-130	0		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	92		88		70-130	4		30
1,2-Dibromoethane	89		87		70-130	2		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	98		90		70-130	9		30
1,3,5-Trimethylbenzene	98		92		70-130	6		30
1,2,4-Trimethylbenzene	96		89		70-130	8		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	111		107		70-130
4-Bromofluorobenzene	113		110		70-130
Dibromofluoromethane	98		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,15,18 Batch: WG1722683-3 WG1722683-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	86		86		70-130	0		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	92		88		70-130	4		30
1,2-Dibromoethane	89		87		70-130	2		30
Ethylbenzene	91		88		70-130	3		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	98		90		70-130	9		30
1,3,5-Trimethylbenzene	98		92		70-130	6		30
1,2,4-Trimethylbenzene	96		89		70-130	8		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	111		107		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	98		96		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 20-22 Batch: WG1722693-3 WG1722693-4								
Methyl tert butyl ether	95		95		63-130	0		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	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	99		100		70-130	1		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	105		105		70-130
Dibromofluoromethane	101		101		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

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: WG1722945-3 WG1722945-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	92		91		70-130
Dibromofluoromethane	109		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15,18 Batch: WG1722950-3 WG1722950-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	109		106		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1723094-3 WG1723094-4								
Methyl tert butyl ether	99		100		66-130	1		30
Benzene	97		100		70-130	3		30
1,2-Dichloroethane	98		99		70-130	1		30
Toluene	89		92		70-130	3		30
1,2-Dibromoethane	93		95		70-130	2		30
Ethylbenzene	92		94		70-130	2		30
p/m-Xylene	91		93		70-130	2		30
o-Xylene	92		95		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	87		90		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	99		99		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:10
 Analyst: CMM
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	12.	E	mg/kg	0.28	0.033	1
Fluorene	3.0		mg/kg	0.28	0.027	1
Phenanthrene	5.5		mg/kg	0.16	0.033	1
Anthracene	2.8		mg/kg	0.16	0.054	1
Pyrene	7.0		mg/kg	0.16	0.027	1
Benzo(a)anthracene	2.3		mg/kg	0.16	0.031	1
Chrysene	3.5		mg/kg	0.16	0.029	1
Benzo(a)pyrene	2.6		mg/kg	0.22	0.067	1
Benzo(ghi)perylene	1.3		mg/kg	0.22	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01 D
 Client ID: GPR276-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:51
 Analyst: CMM
 Percent Solids: 60%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.4	0.17	5
Benzo(b)fluoranthene	2.7		mg/kg	0.82	0.23	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:15
 Analyst: CMM
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.3		mg/kg	0.23	0.028	1
Fluorene	0.20	J	mg/kg	0.23	0.022	1
Phenanthrene	0.72		mg/kg	0.14	0.028	1
Anthracene	0.28		mg/kg	0.14	0.044	1
Pyrene	1.1		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.68		mg/kg	0.14	0.026	1
Chrysene	0.64		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.0		mg/kg	0.14	0.038	1
Benzo(a)pyrene	0.88		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	0.68		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:49
 Analyst: CMM
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.	E	mg/kg	0.24	0.030	1
Fluorene	0.93		mg/kg	0.24	0.024	1
Phenanthrene	3.9		mg/kg	0.15	0.030	1
Anthracene	1.1		mg/kg	0.15	0.048	1
Pyrene	2.5		mg/kg	0.15	0.024	1
Benzo(a)anthracene	1.5		mg/kg	0.15	0.027	1
Chrysene	1.5		mg/kg	0.15	0.025	1
Benzo(b)fluoranthene	1.8		mg/kg	0.15	0.041	1
Benzo(a)pyrene	1.7		mg/kg	0.20	0.060	1
Benzo(ghi)perylene	0.99		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03 D
 Client ID: GPR276-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:27
 Analyst: CMM
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	16.		mg/kg	1.2	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04
 Client ID: GPR276-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 00:32
 Analyst: CMM
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.0		mg/kg	0.19	0.023	1
Fluorene	0.20		mg/kg	0.19	0.018	1
Phenanthrene	0.96		mg/kg	0.11	0.023	1
Anthracene	0.27		mg/kg	0.11	0.037	1
Pyrene	0.76		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.49		mg/kg	0.11	0.021	1
Chrysene	0.44		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.57		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.51		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.28		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05
 Client ID: GPR276-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 01:05
 Analyst: CMM
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.38		mg/kg	0.18	0.022	1
Fluorene	0.71		mg/kg	0.18	0.018	1
Phenanthrene	4.6		mg/kg	0.11	0.022	1
Anthracene	1.4		mg/kg	0.11	0.035	1
Pyrene	3.6		mg/kg	0.11	0.018	1
Benzo(a)anthracene	2.2		mg/kg	0.11	0.020	1
Chrysene	1.9		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	2.2		mg/kg	0.11	0.030	1
Benzo(a)pyrene	1.9		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.86		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06
 Client ID: GPR276-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:18
 Analyst: CMM
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.9		mg/kg	0.26	0.031	1
Fluorene	0.49		mg/kg	0.26	0.025	1
Phenanthrene	2.7		mg/kg	0.15	0.031	1
Anthracene	0.85		mg/kg	0.15	0.050	1
Pyrene	2.6		mg/kg	0.15	0.025	1
Benzo(a)anthracene	1.8		mg/kg	0.15	0.029	1
Chrysene	1.7		mg/kg	0.15	0.027	1
Benzo(b)fluoranthene	2.4		mg/kg	0.15	0.043	1
Benzo(a)pyrene	2.2		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	1.5		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:36
 Analyst: CMM
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.2		mg/kg	0.21	0.026	1
Fluorene	0.40		mg/kg	0.21	0.021	1
Phenanthrene	3.0		mg/kg	0.13	0.026	1
Anthracene	1.4		mg/kg	0.13	0.042	1
Pyrene	8.0		mg/kg	0.13	0.021	1
Benzo(a)anthracene	9.8	E	mg/kg	0.13	0.024	1
Chrysene	7.2		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	13.	E	mg/kg	0.13	0.036	1
Benzo(a)pyrene	12.	E	mg/kg	0.17	0.052	1
Benzo(ghi)perylene	5.4		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	82		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07 D
 Client ID: GPR276-12-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:03
 Analyst: CMM
 Percent Solids: 76%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)anthracene	8.5		mg/kg	0.64	0.12	5
Benzo(b)fluoranthene	10.		mg/kg	0.64	0.18	5
Benzo(a)pyrene	9.2		mg/kg	0.86	0.26	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 05:53
 Analyst: CMM
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	17.	E	mg/kg	0.25	0.030	1
Fluorene	0.79		mg/kg	0.25	0.024	1
Phenanthrene	4.0		mg/kg	0.15	0.030	1
Anthracene	1.4		mg/kg	0.15	0.049	1
Pyrene	3.9		mg/kg	0.15	0.025	1
Benzo(a)anthracene	2.9		mg/kg	0.15	0.028	1
Chrysene	3.0		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	4.4		mg/kg	0.15	0.042	1
Benzo(a)pyrene	4.0		mg/kg	0.20	0.061	1
Benzo(ghi)perylene	2.6		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08 D
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 14:39
 Analyst: CMM
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.2	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09
 Client ID: GPR276-15-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/09/22 23:58
 Analyst: CMM
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.8		mg/kg	0.18	0.022	1
Fluorene	0.13	J	mg/kg	0.18	0.018	1
Phenanthrene	0.73		mg/kg	0.11	0.022	1
Anthracene	0.17		mg/kg	0.11	0.036	1
Pyrene	0.64		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.35		mg/kg	0.11	0.021	1
Chrysene	0.37		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.47		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.38		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.22		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10 D2
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 22:11
 Analyst: LJG
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	150		mg/kg	2.9	0.59	20
Pyrene	160		mg/kg	2.9	0.48	20
Benzo(a)anthracene	55.		mg/kg	2.9	0.54	20
Chrysene	60.		mg/kg	2.9	0.50	20
Benzo(b)fluoranthene	56.		mg/kg	2.9	0.81	20
Benzo(a)pyrene	59.		mg/kg	3.9	1.2	20
Benzo(ghi)perylene	45.		mg/kg	3.9	0.57	20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10 D
 Client ID: GPR276-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 14:15
 Analyst: CMM
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.4		mg/kg	0.48	0.059	2
Fluorene	18.		mg/kg	0.48	0.047	2
Phenanthrene	70.	E	mg/kg	0.29	0.059	2
Anthracene	16.		mg/kg	0.29	0.094	2
Pyrene	77.	E	mg/kg	0.29	0.048	2
Benzo(a)anthracene	30.	E	mg/kg	0.29	0.054	2
Chrysene	28.	E	mg/kg	0.29	0.050	2
Benzo(b)fluoranthene	26.	E	mg/kg	0.29	0.081	2
Benzo(a)pyrene	27.	E	mg/kg	0.39	0.12	2
Benzo(ghi)perylene	21.	E	mg/kg	0.39	0.057	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11
 Client ID: GPR276-17-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:27
 Analyst: CMM
 Percent Solids: 64%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	8.0		mg/kg	0.26	0.031	1
Fluorene	0.68		mg/kg	0.26	0.025	1
Phenanthrene	2.6		mg/kg	0.16	0.031	1
Anthracene	0.96		mg/kg	0.16	0.050	1
Pyrene	1.7		mg/kg	0.16	0.026	1
Benzo(a)anthracene	1.1		mg/kg	0.16	0.029	1
Chrysene	1.2		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	1.9		mg/kg	0.16	0.044	1
Benzo(a)pyrene	1.8		mg/kg	0.21	0.063	1
Benzo(ghi)perylene	1.4		mg/kg	0.21	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 06:43
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.	E	mg/kg	0.23	0.028	1
Fluorene	0.68		mg/kg	0.23	0.022	1
Phenanthrene	2.1		mg/kg	0.14	0.028	1
Anthracene	0.71		mg/kg	0.14	0.045	1
Pyrene	1.6		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.4		mg/kg	0.14	0.026	1
Chrysene	1.4		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.5		mg/kg	0.14	0.039	1
Benzo(a)pyrene	2.3		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.7		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12 D
 Client ID: GPR285-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 13:27
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13
 Client ID: GPR285-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:20
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:00
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.1		mg/kg	0.24	0.029	1
Fluorene	0.30		mg/kg	0.24	0.023	1
Phenanthrene	1.7		mg/kg	0.14	0.029	1
Anthracene	0.70		mg/kg	0.14	0.047	1
Pyrene	2.0		mg/kg	0.14	0.024	1
Benzo(a)anthracene	2.2		mg/kg	0.14	0.027	1
Chrysene	2.0		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.5		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.2		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.8		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14
 Client ID: GPR285-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:17
 Analyst: CMM
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.1		mg/kg	0.23	0.028	1
Fluorene	0.26		mg/kg	0.23	0.022	1
Phenanthrene	1.6		mg/kg	0.14	0.028	1
Anthracene	0.68		mg/kg	0.14	0.044	1
Pyrene	1.6		mg/kg	0.14	0.022	1
Benzo(a)anthracene	1.2		mg/kg	0.14	0.026	1
Chrysene	1.3		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.0		mg/kg	0.14	0.038	1
Benzo(a)pyrene	1.8		mg/kg	0.18	0.055	1
Benzo(ghi)perylene	1.4		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	93		30-120
4-Terphenyl-d14	92		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:34
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	16.	E	mg/kg	0.24	0.029	1
Fluorene	0.81		mg/kg	0.24	0.023	1
Phenanthrene	2.7		mg/kg	0.14	0.029	1
Anthracene	0.59		mg/kg	0.14	0.046	1
Pyrene	0.83		mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.41		mg/kg	0.14	0.027	1
Chrysene	0.47		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	0.59		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.40		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.33		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	87		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15 D
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 13:03
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16
 Client ID: GPR285-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:50
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 07:51
 Analyst: CMM
 Percent Solids: 71%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.0		mg/kg	0.23	0.028	1
Fluorene	0.38		mg/kg	0.23	0.022	1
Phenanthrene	1.5		mg/kg	0.14	0.028	1
Anthracene	0.50		mg/kg	0.14	0.045	1
Pyrene	1.2		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.2		mg/kg	0.14	0.026	1
Chrysene	1.2		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.8		mg/kg	0.14	0.039	1
Benzo(a)pyrene	1.8		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.0		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	79		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17
 Client ID: GPR285-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:08
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.6		mg/kg	0.24	0.029	1
Fluorene	0.40		mg/kg	0.24	0.023	1
Phenanthrene	2.5		mg/kg	0.14	0.029	1
Anthracene	0.77		mg/kg	0.14	0.047	1
Pyrene	2.0		mg/kg	0.14	0.024	1
Benzo(a)anthracene	1.6		mg/kg	0.14	0.027	1
Chrysene	1.4		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	2.0		mg/kg	0.14	0.040	1
Benzo(a)pyrene	1.9		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.2		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	38		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:24
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.	E	mg/kg	0.23	0.028	1
Fluorene	1.1		mg/kg	0.23	0.023	1
Phenanthrene	7.3		mg/kg	0.14	0.028	1
Anthracene	2.0		mg/kg	0.14	0.046	1
Pyrene	6.8		mg/kg	0.14	0.023	1
Benzo(a)anthracene	4.9		mg/kg	0.14	0.026	1
Chrysene	4.4		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	5.8		mg/kg	0.14	0.039	1
Benzo(a)pyrene	4.9		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	4.5		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18 D
 Client ID: GPR285-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 12:38
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19
 Client ID: DUP-53
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 00:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/10/22 08:41
 Analyst: CMM
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/08/22 23:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.9		mg/kg	0.24	0.029	1
Fluorene	0.41		mg/kg	0.24	0.023	1
Phenanthrene	2.0		mg/kg	0.14	0.029	1
Anthracene	0.80		mg/kg	0.14	0.046	1
Pyrene	1.4		mg/kg	0.14	0.024	1
Benzo(a)anthracene	1.9		mg/kg	0.14	0.027	1
Chrysene	1.8		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	3.0		mg/kg	0.14	0.040	1
Benzo(a)pyrene	2.7		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	1.6		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	44		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20
 Client ID: FB-221207-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 12:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/09/22 16:01
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/09/22 00:04

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	88		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	94		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21
 Client ID: FB-221207-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:10
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/09/22 16:17
 Analyst: JJW

Extraction Method: EPA 3510C
 Extraction Date: 12/09/22 00:04

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	96		23-120
2-Fluorobiphenyl	74		15-120
4-Terphenyl-d14	87		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 12/09/22 21:48
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 12/08/22 23:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-19 Batch: WG1721167-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	76		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM
Analytical Date: 12/09/22 14:57
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/09/22 00:04

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 20-21 Batch: WG1721171-1					
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	0.35		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	89		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	93		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-19 Batch: WG1721167-2 WG1721167-3								
Naphthalene	63		70		40-140	11		50
Fluorene	62		70		40-140	12		50
Phenanthrene	59		66		40-140	11		50
Anthracene	60		68		40-140	13		50
Pyrene	62		72		35-142	15		50
Benzo(a)anthracene	62		70		40-140	12		50
Chrysene	60		68		40-140	13		50
Benzo(b)fluoranthene	64		72		40-140	12		50
Benzo(a)pyrene	66		75		40-140	13		50
Benzo(ghi)perylene	60		69		40-140	14		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	85		98		23-120
2-Fluorobiphenyl	66		72		30-120
4-Terphenyl-d14	61		68		18-120

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 20-21 Batch: WG1721171-2 WG1721171-3								
Naphthalene	59		65		40-140	10		40
Fluorene	68		71		40-140	4		40
Phenanthrene	70		71		40-140	1		40
Anthracene	75		78		40-140	4		40
Pyrene	80		79		26-127	1		40
Benzo(a)anthracene	83		82		40-140	1		40
Chrysene	74		75		40-140	1		40
Benzo(b)fluoranthene	83		84		40-140	1		40
Benzo(a)pyrene	87		85		40-140	2		40
Benzo(ghi)perylene	83		85		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		91		23-120
2-Fluorobiphenyl	63		70		15-120
4-Terphenyl-d14	86		85		41-149



METALS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-01

Date Collected: 12/07/22 10:00

Client ID: GPR276-01-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	475		mg/kg	3.17	0.170	1	12/09/22 09:50	12/09/22 22:51	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-02
 Client ID: GPR276-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:10
 Date Received: 12/07/22
 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	84.6		mg/kg	2.73	0.146	1	12/09/22 09:50	12/09/22 22:55	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-03

Date Collected: 12/07/22 10:15

Client ID: GPR276-05-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	198		mg/kg	2.83	0.152	1	12/09/22 09:50	12/09/22 23:00	EPA 3050B	1,6010D	MRC



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-04
 Client ID: GPR276-06-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 10:30
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	82.9		mg/kg	2.26	0.121	1	12/09/22 09:50	12/10/22 10:11	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-05

Date Collected: 12/07/22 10:40

Client ID: GPR276-07-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	896		mg/kg	2.17	0.116	1	12/09/22 09:50	12/10/22 10:14	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06

Date Collected: 12/07/22 10:50

Client ID: GPR276-11-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	397		mg/kg	3.03	0.162	1	12/09/22 09:50	12/10/22 10:18	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07

Date Collected: 12/07/22 11:00

Client ID: GPR276-12-SS01

Date Received: 12/07/22

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	131		mg/kg	2.58	0.138	1	12/09/22 09:50	12/10/22 10:21	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08
 Client ID: GPR276-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 11:15
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	167		mg/kg	2.84	0.152	1	12/09/22 09:50	12/10/22 10:25	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-09

Date Collected: 12/07/22 11:30

Client ID: GPR276-15-SS01

Date Received: 12/07/22

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	7.08		mg/kg	2.13	0.114	1	12/09/22 09:50	12/10/22 10:28	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10

Date Collected: 12/07/22 11:40

Client ID: GPR276-16-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

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	284		mg/kg	2.91	0.156	1	12/09/22 09:50	12/10/22 10:31	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-11

Date Collected: 12/07/22 13:00

Client ID: GPR276-17-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	383		mg/kg	2.95	0.158	1	12/09/22 09:50	12/10/22 10:35	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-12

Date Collected: 12/07/22 13:10

Client ID: GPR285-01-SS01

Date Received: 12/07/22

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	255		mg/kg	2.76	0.148	1	12/09/22 09:50	12/10/22 10:38	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-13

Date Collected: 12/07/22 13:20

Client ID: GPR285-02-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	80.6		mg/kg	2.82	0.151	1	12/09/22 09:50	12/10/22 10:42	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-14

Date Collected: 12/07/22 13:30

Client ID: GPR285-03-SS01

Date Received: 12/07/22

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	296		mg/kg	2.67	0.143	1	12/09/22 09:50	12/10/22 10:59	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15
 Client ID: GPR285-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 13:40
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	287		mg/kg	2.80	0.150	1	12/09/22 09:50	12/10/22 11:03	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16

Date Collected: 12/07/22 13:50

Client ID: GPR285-08-SS01

Date Received: 12/07/22

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	160		mg/kg	2.76	0.148	1	12/09/22 09:50	12/10/22 11:06	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-17
 Client ID: GPR285-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/07/22 14:00
 Date Received: 12/07/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	113		mg/kg	2.84	0.152	1	12/09/22 09:50	12/10/22 11:09	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18

Date Collected: 12/07/22 14:10

Client ID: GPR285-13-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	129		mg/kg	2.78	0.149	1	12/09/22 09:50	12/10/22 11:13	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-19

Date Collected: 12/07/22 00:00

Client ID: DUP-53

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	212		mg/kg	2.83	0.152	1	12/09/22 09:50	12/10/22 11:16	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-20

Date Collected: 12/07/22 12:00

Client ID: FB-221207-1

Date Received: 12/07/22

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	18.21		ug/l	1.000	0.3430	1	12/09/22 09:35	12/13/22 22:52	EPA 3005A	1,6020B	WKP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-21

Date Collected: 12/07/22 14:10

Client ID: FB-221207-2

Date Received: 12/07/22

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	0.9214	J	ug/l	1.000	0.3430	1	12/09/22 09:35	12/13/22 22:57	EPA 3005A	1,6020B	WKP



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

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): 01-19 Batch: WG1721218-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/09/22 09:50	12/09/22 22:42	1,6010D	MRC

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): 20-21 Batch: WG1721257-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/09/22 09:35	12/09/22 13:17	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 Batch: WG1721218-2 SRM Lot Number: D116-540								
Lead, Total	101		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 20-21 Batch: WG1721257-2								
Lead, Total	104		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

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): 01-19			QC Batch ID: WG1721218-3			QC Sample: L2268385-06			Client ID: MS Sample			
Lead, Total	4.57	82.8	80.3	91		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 20-21			QC Batch ID: WG1721257-3			QC Sample: L2268797-01			Client ID: MS Sample			
Lead, Total	0.5591J	530	500.1	94		-	-		75-125	-		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-01

Date Collected: 12/07/22 10:00

Client ID: GPR276-01-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60.2		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-02

Date Collected: 12/07/22 10:10

Client ID: GPR276-03-SS01

Date Received: 12/07/22

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	72.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-03

Date Collected: 12/07/22 10:15

Client ID: GPR276-05-SS01

Date Received: 12/07/22

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	67.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-04

Date Collected: 12/07/22 10:30

Client ID: GPR276-06-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-05

Date Collected: 12/07/22 10:40

Client ID: GPR276-07-SS01

Date Received: 12/07/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-06

Date Collected: 12/07/22 10:50

Client ID: GPR276-11-SS01

Date Received: 12/07/22

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	63.8		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-07

Date Collected: 12/07/22 11:00

Client ID: GPR276-12-SS01

Date Received: 12/07/22

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	76.3		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-08

Date Collected: 12/07/22 11:15

Client ID: GPR276-13-SS01

Date Received: 12/07/22

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	66.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-09

Date Collected: 12/07/22 11:30

Client ID: GPR276-15-SS01

Date Received: 12/07/22

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	89.2		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-10

Date Collected: 12/07/22 11:40

Client ID: GPR276-16-SS01

Date Received: 12/07/22

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	67.6		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-11

Date Collected: 12/07/22 13:00

Client ID: GPR276-17-SS01

Date Received: 12/07/22

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	64.1		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-12

Date Collected: 12/07/22 13:10

Client ID: GPR285-01-SS01

Date Received: 12/07/22

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	71.3		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-13

Date Collected: 12/07/22 13:20

Client ID: GPR285-02-SS01

Date Received: 12/07/22

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	68.6		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-14

Date Collected: 12/07/22 13:30

Client ID: GPR285-03-SS01

Date Received: 12/07/22

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	73.0		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-15

Date Collected: 12/07/22 13:40

Client ID: GPR285-07-SS01

Date Received: 12/07/22

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	69.7		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-16

Date Collected: 12/07/22 13:50

Client ID: GPR285-08-SS01

Date Received: 12/07/22

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	70.7		%	0.100	NA	1	-	12/09/22 13:09	121,2540G	GG



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-17

Date Collected: 12/07/22 14:00

Client ID: GPR285-11-SS01

Date Received: 12/07/22

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	68.5		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2268803

Project Number: 200.00135.006

Report Date: 12/14/22

SAMPLE RESULTS

Lab ID: L2268803-18

Date Collected: 12/07/22 14:10

Client ID: GPR285-13-SS01

Date Received: 12/07/22

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	69.9		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**SAMPLE RESULTS**

Lab ID: L2268803-19

Date Collected: 12/07/22 00:00

Client ID: DUP-53

Date Received: 12/07/22

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	68.8		%	0.100	NA	1	-	12/09/22 17:38	121,2540G	MF



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2268803

Report Date: 12/14/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16 QC Batch ID: WG1721482-1 QC Sample: L2268803-01 Client ID: GPR276-01-SS01						
Solids, Total	60.2	58.9	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 17-19 QC Batch ID: WG1721555-1 QC Sample: L2268350-01 Client ID: DUP Sample						
Solids, Total	86.7	84.7	%	2		20

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-01A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-01B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-01C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-01D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-01F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-02A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2268803-02B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260H(14),PA-8260HLW(14)
L2268803-02C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260H(14),PA-8260HLW(14)
L2268803-02D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-02F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-03A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-03B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-03C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-03D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-03F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-04A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-04B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-04C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-04D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-04E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-04F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-05A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-05B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-05C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-05D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-05E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-05F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-06A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-06B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-06C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-06D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-06E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-06F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-07A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)
L2268803-07B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-07C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-07D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-07E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-07F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-08A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-08B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-08C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-08D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-08F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-09A	Vial MeOH preserved	C	NA		3.2	Y	Absent		PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-09B	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-09C	Vial water preserved	C	NA		3.2	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-09D	Plastic 2oz unpreserved for TS	C	NA		3.2	Y	Absent		TS(7)
L2268803-09E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.2	Y	Absent		PB-TI(180)
L2268803-09F	Glass 120ml/4oz unpreserved	C	NA		3.2	Y	Absent		PA-PAH(14)
L2268803-10A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-10B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-10C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-10D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-10F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-11A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-11B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-11C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-11D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-11F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-12A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-12B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-12C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-12D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-12F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-13A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-13B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-13C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-13D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-13F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-14A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-14B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-14C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-14D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-14F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-15A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-15B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-15C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-15D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-15F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-16A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-16B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-16C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-16D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-16F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-17A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-17B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-17C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-17D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-17F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-18A	Vial MeOH preserved	B	NA		3.7	Y	Absent		PA-8260HLW(14)
L2268803-18B	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-18C	Vial water preserved	B	NA		3.7	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2268803**Project Number:** 200.00135.006**Report Date:** 12/14/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-18D	Plastic 2oz unpreserved for TS	B	NA		3.7	Y	Absent		TS(7)
L2268803-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.7	Y	Absent		PB-TI(180)
L2268803-18F	Glass 120ml/4oz unpreserved	B	NA		3.7	Y	Absent		PA-PAH(14)
L2268803-19A	Vial MeOH preserved	A	NA		3.3	Y	Absent		PA-8260HLW(14)
L2268803-19B	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-19C	Vial water preserved	A	NA		3.3	Y	Absent	08-DEC-22 14:21	PA-8260HLW(14)
L2268803-19D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2268803-19E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		PB-TI(180)
L2268803-19F	Glass 120ml/4oz unpreserved	A	NA		3.3	Y	Absent		PA-PAH(14)
L2268803-20A	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20B	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20C	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-20D	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-20E	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-20F	Plastic 250ml HNO3 preserved	B	<2	<2	3.7	Y	Absent		PB-6020T-PPB(180)
L2268803-20G	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-20H	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-20I	Plastic 120ml unpreserved	B	7	7	3.7	Y	Absent		ARCHIVE()
L2268803-21A	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21B	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21C	Vial HCl preserved	B	NA		3.7	Y	Absent		PA-8260(14)
L2268803-21D	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-21E	Vial Na2S2O3 preserved	B	NA		3.7	Y	Absent		8011(14)
L2268803-21F	Plastic 250ml HNO3 preserved	B	<2	<2	3.7	Y	Absent		PB-6020T-PPB(180)
L2268803-21G	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-21H	Amber 250ml unpreserved	B	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2268803-21I	Plastic 120ml unpreserved	B	7	7	3.7	Y	Absent		ARCHIVE()
L2268803-22A	Vial HCl preserved	A	NA		3.3	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Serial_No:12142213:35

Lab Number: L2268803

Report Date: 12/14/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268803-22B	Vial HCl preserved	A	NA		3.3	Y	Absent		PA-8260(14)
L2268803-22C	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		8011(14)
L2268803-22D	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2268803
Report Date: 12/14/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1761~~ ~~1783~~ 18559

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@hilco-global.com

Date Rec'd in Lab: 12/8/12

ALPHA Job #: L2269403

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
		Date	Time		
68803.01	GPR276-01-5501	12/7	1000	S	TS
02	GPR276-03-5501		1010		
03	GPR276-05-5501		1015		
04	GPR276-06-5501		1030		
05	GPR276-07-5501		1040		
06	GPR276-11-5501		1050		
07	GPR276-12-5501		1100		
08	GPR276-13-5501		1115		
09	GPR276-15-5501		1130		
10	GPR276-16-5501		1140		

VOCs (8060)	SVOCs (8270)	Lead	ANALYSIS																	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- SAMPLE HANDLING**
- Filtration
 - Done
 - Not Needed
 - Lab to do
 - Preservation
 - Lab to do
 - (Please specify below)

TOTAL # BOTTLES

11/16/12

*gdm
12/16/12
0150
12/18/12 0150*

Relinquished By:	Date/Time: 12/7/12	Received By:	Date/Time: 12/7/12 155
Preservative: F A A	Container Type: G G G	Preservative: F A A	Container Type: G G G
<i>12/7/12 10</i>	<i>12/7/12 10</i>	<i>12/7/12 10</i>	<i>12/7/12 10</i>

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3



Westborough, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

Mansfield, MA
 TEL: 508-822-9300
 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 PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1703~~ 18559

Turn-Around Time

Due Date: Time:

Date Rec'd in Lab: 12/18/12

ALPHA Job #: L2268803

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 (\$260)	SVOCs (\$270)	Lead																
12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
18	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
19	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
DUP - 53	<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

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
G8803.1	GPR276-17-SS01	12/7	1300	S	TS
12	GPR285-01-SS01		1310		
13	GPR285-02-SS01		1320		
14	GPR285-03-SS01		1330		
15	GPR285-07-SS01		1340		
16	GPR285-08-SS01		1350		
17	GPR285-11-SS01		1400		
18	GPR285-13-SS01		1410		
19	DUP - 53		-		

Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-

Relinquished By: <i>[Signature]</i>	Date/Time: 12/7	Received By: <i>[Signature]</i>	Date/Time: 12/7/2012
<i>[Signature]</i>	12/7/2012	<i>[Signature]</i>	12-7-12
<i>[Signature]</i>	12-7-2012	<i>[Signature]</i>	12-7-2012

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY PAGE 3 OF 3



Westborough, MA
 TEL: 508-898-9220
 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 of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~13161~~ ~~17833~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 12/8/22

ALPHA Job #: 2264803

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														
		Date	Time																			
64803 20	FB-221207-1	12/7	1200	W	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	FB-221207-2	↓	1410	W	↓	<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"/>
	TB-221207	↓	-	W	↓	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
									<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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

12/8/22 0150

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
64803 20	FB-221207-1	12/7	1200	W	TS
21	FB-221207-2	↓	1410	W	↓
	TB-221207	↓	-	W	↓

Container Type	G	G	G	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-

of anal
 12/8/22
 also
 12/8/22 0150

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/7	<i>[Signature]</i>	12/7/22 15:53
<i>[Signature]</i>	12/7/22	<i>[Signature]</i>	12/7/22
<i>[Signature]</i>	12/7/22	<i>[Signature]</i>	12/7/22 0150

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.

L2268803

PADEP Short List Analytical Suites per Table III-5:

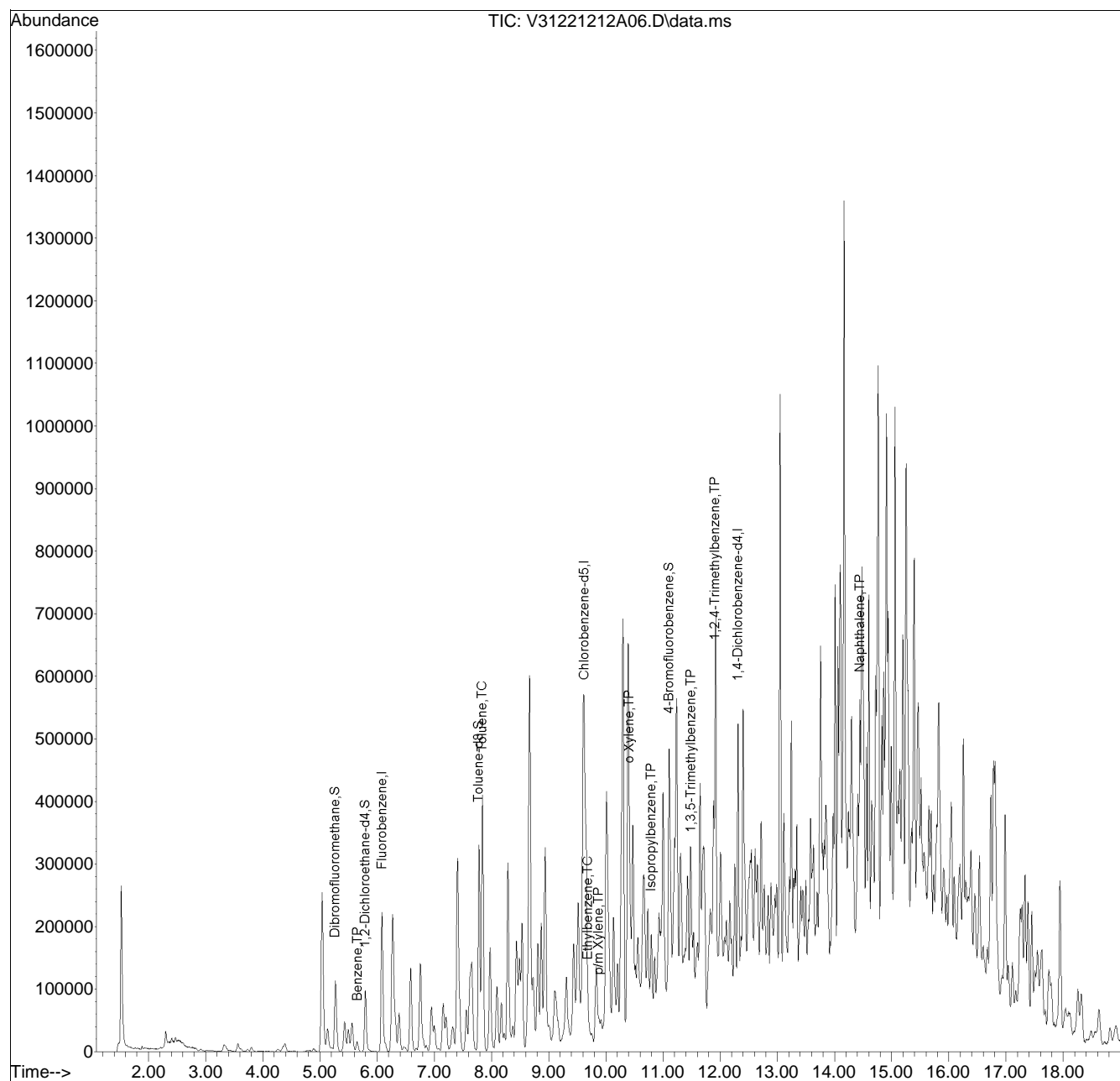
1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212A\
 Data File : V31221212A06.D
 Acq On : 12 Dec 2022 09:54 am
 Operator : VOA131:NLK
 Sample : L2268803-01,31H,4.42,5,0.100,,A,R2F
 Misc : WG1722683,ICAL19531
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 12 14:12:47 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221212A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V31221212A01.D•

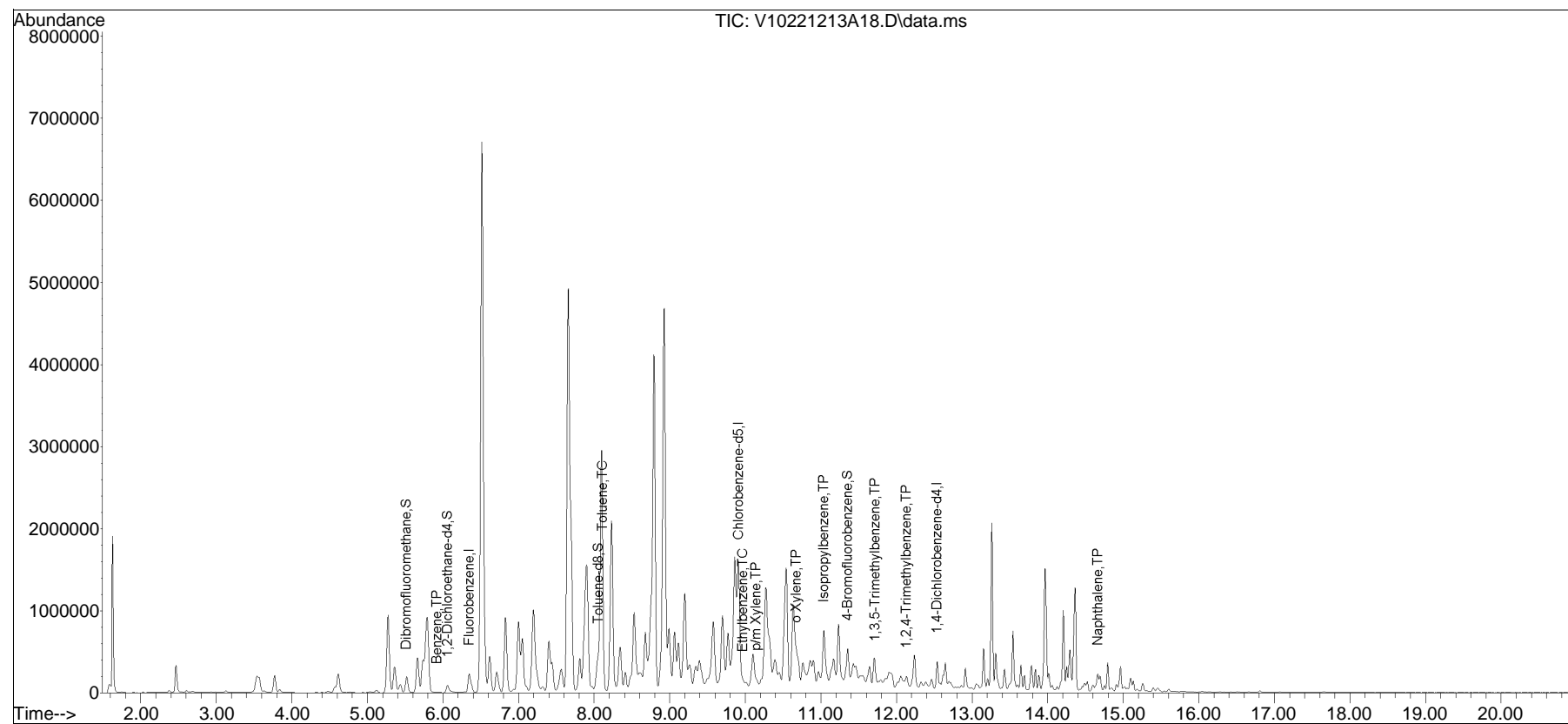


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221213A\
Data File : V10221213A18.D
Acq On : 13 Dec 2022 4:45 pm
Operator : VOA110:AJK
Sample : 12268803-02,31,4.10,5,,c,r2f
Misc : WG1722945,ICAL19281
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 13 18:29:34 2022
Quant Method : I:\VOLATILES\VOA110\2022\221213A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10221213A01.D•

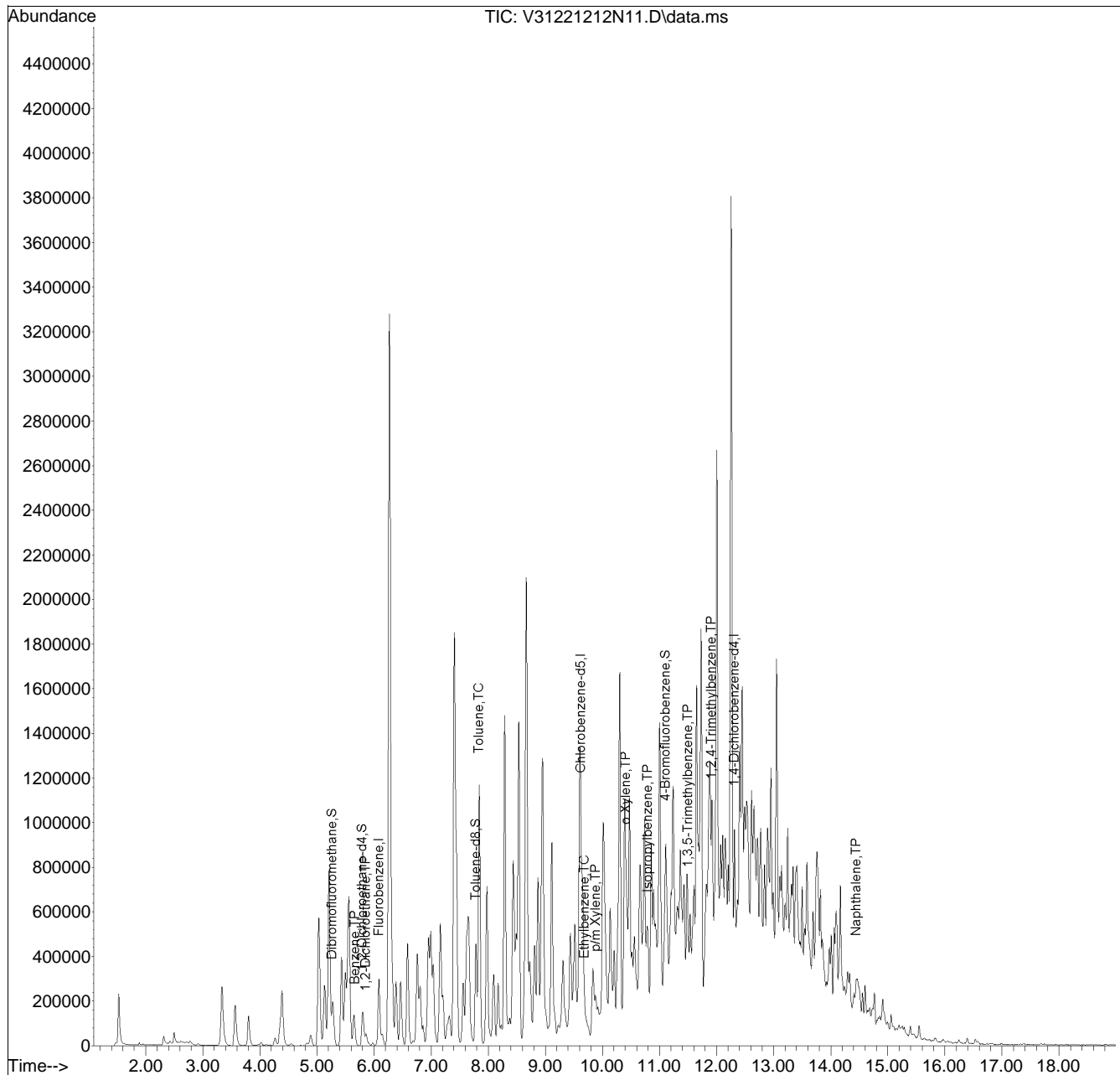


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
 Data File : V31221212N11.D
 Acq On : 12 Dec 2022 10:38 pm
 Operator : VOA131:NLK
 Sample : L2268803-09,31H,5.65,5,0.100,,A,R2F
 Misc : WG1722648,ICAL19531
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 13 07:50:51 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

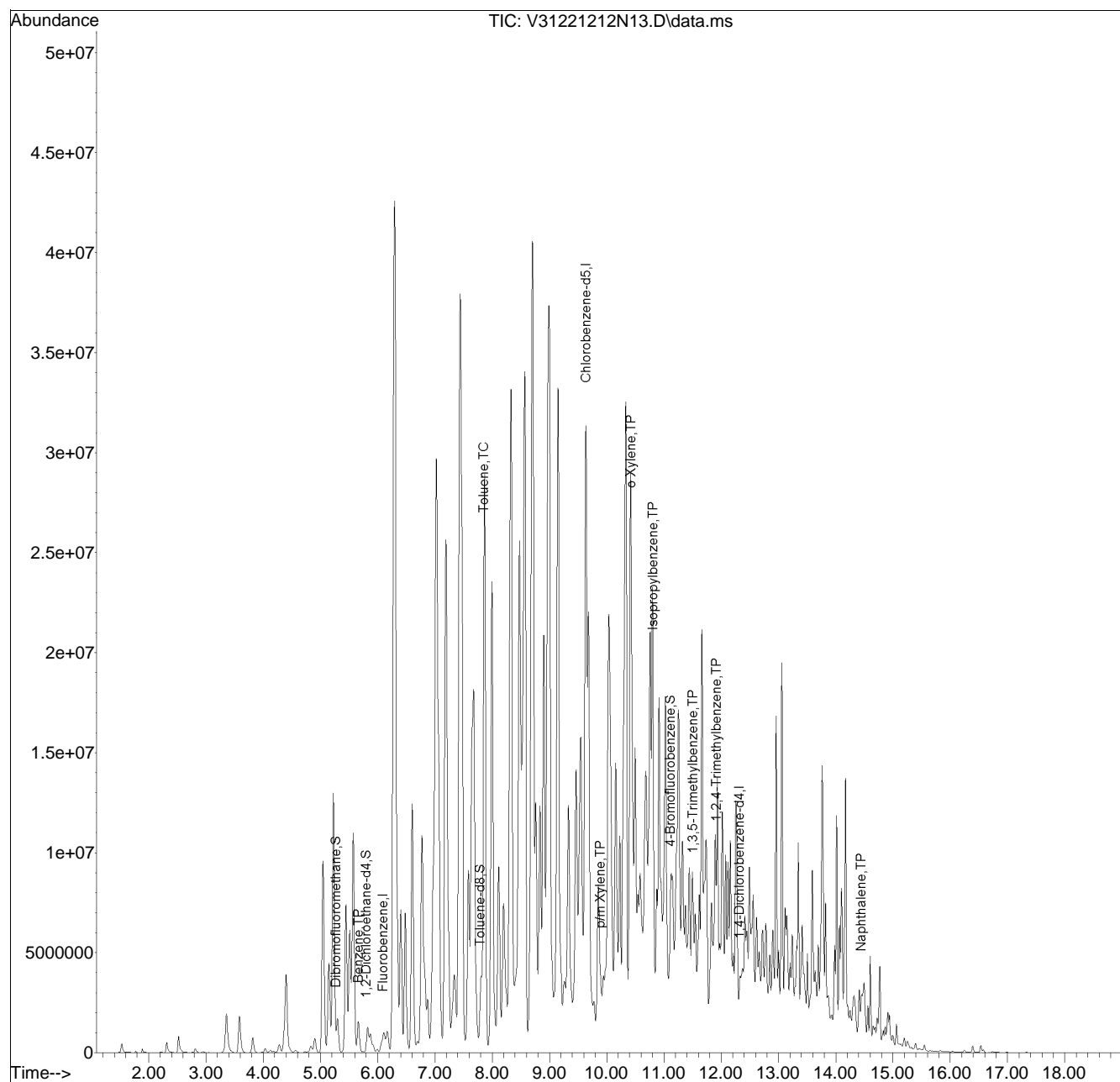


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
Data File : V31221212N13.D
Acq On : 12 Dec 2022 11:24 pm
Operator : VOA131:NLK
Sample : L2268803-10,31,4.11,5,,B,R2F
Misc : WG1722651,ICAL19531
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 13 08:12:22 2022
Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

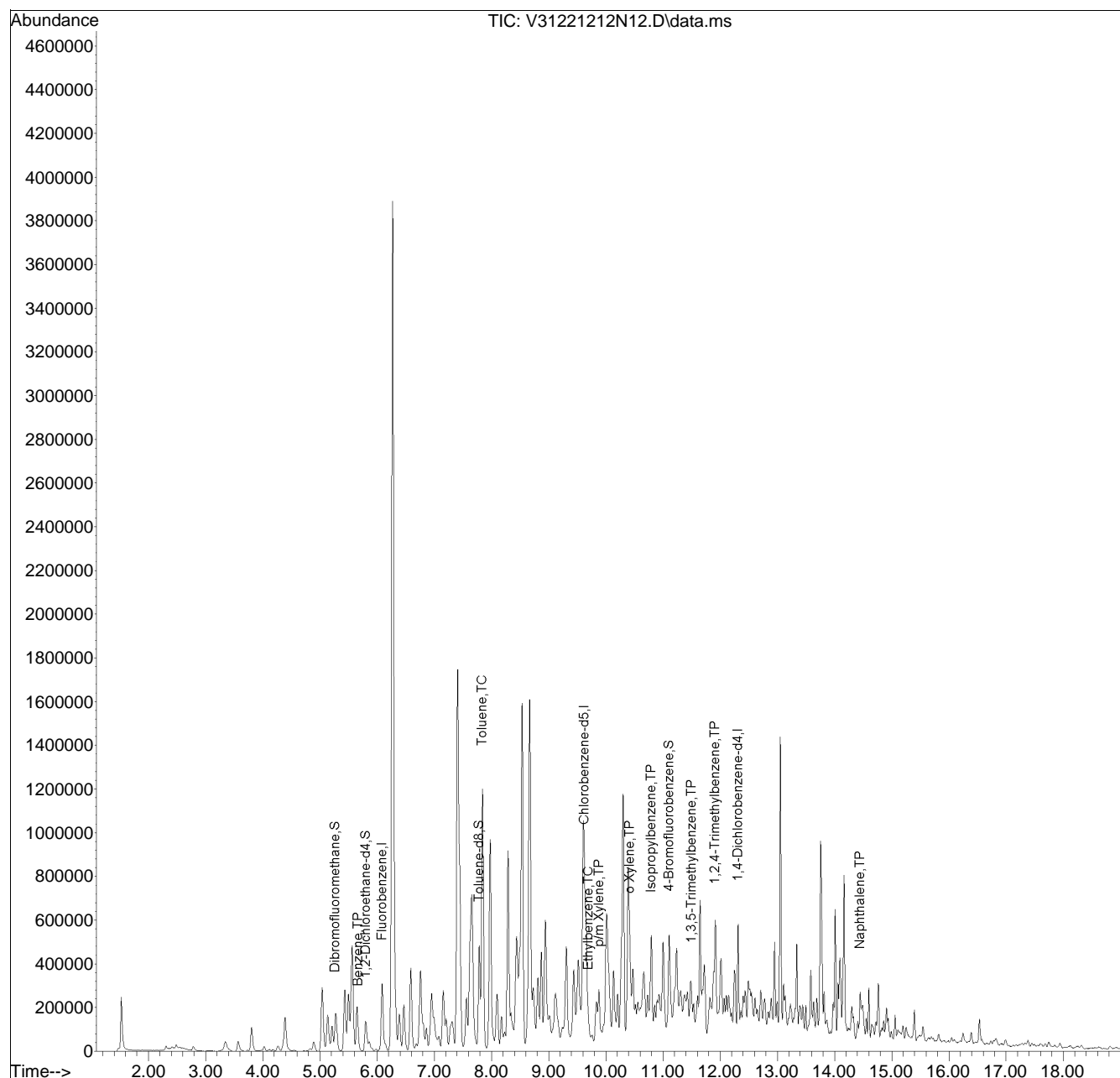


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221212N\
Data File : V31221212N12.D
Acq On : 12 Dec 2022 11:01 pm
Operator : VOA131:NLK
Sample : L2268803-11,31H,4.30,5,0.100,,A,R2F
Misc : WG1722648,ICAL19531
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 13 08:11:48 2022
Quant Method : I:\VOLATILES\VOA131\2022\221212N\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12N\V31221212N01.D•

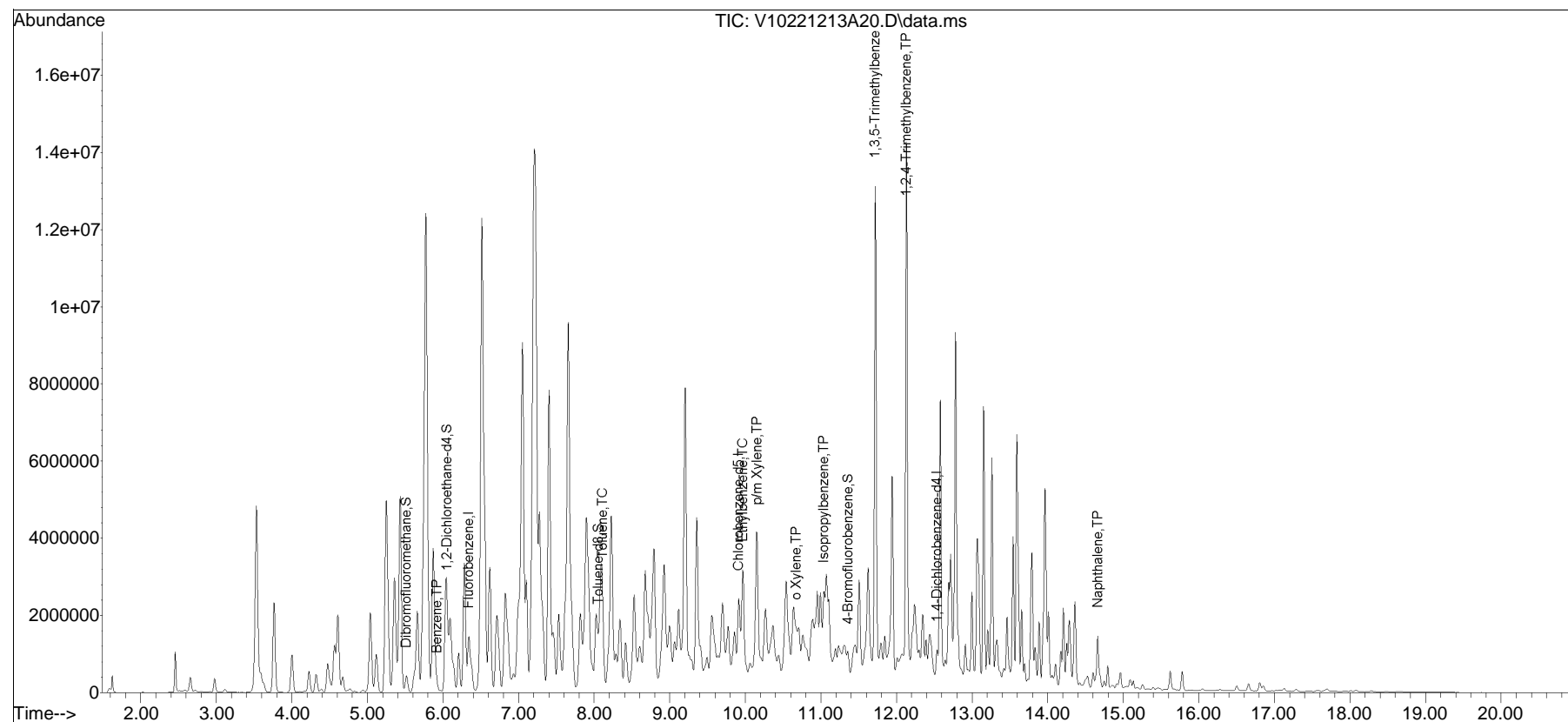


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\221213A\
Data File : V10221213A20.D
Acq On : 13 Dec 2022 5:40 pm
Operator : VOA110:AJK
Sample : 12268803-18d2,31h,4.23,5,0.05,,a,r2f
Misc : WG1722950,ICAL19281
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 13 18:30:51 2022
Quant Method : I:\VOLATILES\VOA110\2022\221213A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13A\V10221213A01.D•





ANALYTICAL REPORT

Lab Number:	L2269124
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/15/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269124-01	GPR286-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:30	12/08/22
L2269124-02	GPR286-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:40	12/08/22
L2269124-03	GPR286-05-SS01	SOIL	PHILADELPHIA, PA	12/08/22 09:50	12/08/22
L2269124-04	GPR286-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:00	12/08/22
L2269124-05	GPR286-08-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:10	12/08/22
L2269124-06	GPR286-11-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:20	12/08/22
L2269124-07	GPR286-13-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:30	12/08/22
L2269124-08	GPR286-16-SS01	SOIL	PHILADELPHIA, PA	12/08/22 10:40	12/08/22
L2269124-09	GPR270-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:10	12/08/22
L2269124-10	GPR270-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:20	12/08/22
L2269124-11	GPR270-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:30	12/08/22
L2269124-12	GPR270-08-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:40	12/08/22
L2269124-13	GPR270-09-SS01	SOIL	PHILADELPHIA, PA	12/08/22 11:50	12/08/22
L2269124-14	GPR270-11-SS01	SOIL	PHILADELPHIA, PA	12/08/22 12:00	12/08/22
L2269124-15	GPR270-13-SS01	SOIL	PHILADELPHIA, PA	12/08/22 12:10	12/08/22
L2269124-16	GPR1047-01-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:00	12/08/22
L2269124-17	GPR1047-02-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:10	12/08/22
L2269124-18	GPR1047-03-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:20	12/08/22
L2269124-19	GPR1047-04-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:30	12/08/22
L2269124-20	GPR1047-06-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:35	12/08/22
L2269124-21	GPR1047-07-SS01	SOIL	PHILADELPHIA, PA	12/08/22 13:50	12/08/22
L2269124-22	DUP-54	SOIL	PHILADELPHIA, PA	12/08/22 00:00	12/08/22
L2269124-23	FB-221208-1	WATER	PHILADELPHIA, PA	12/08/22 12:00	12/08/22
L2269124-24	FB-221208-2	WATER	PHILADELPHIA, PA	12/08/22 14:55	12/08/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269124-25	TB-221208	WATER	PHILADELPHIA, PA	12/08/22 00:00	12/08/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

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.

Volatile Organics

L2269124-06, -10, 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.

L2269124-06: 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.

L2269124-09: 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.

L2269124-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (226%); 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.

L2269124-10: 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.

L2269124-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (159%); 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.

L2269124-13: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (133%) 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.

L2269124-14: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (151%) and 4-

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Case Narrative (continued)

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.

Microextractables

The WG1721462-2 LCS recovery for 1,2-dibromoethane (73%), associated with L2269124-23, -24, and -25, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Semivolatile Organics by SIM

The WG1722646-1 Method Blank, associated with L2269124-23 and -24, has a concentration above the reporting limit for Benzo(a)anthracene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

Total Metals

The WG1721469-3 MS recovery, performed on L2269124-01, is outside the acceptance criteria for lead (138%). A post digestion spike was performed and yielded unacceptable recoveries for lead (158%). The serial dilution recovery was acceptable; therefore, the matrix test passed for the sample matrix.

The WG1721469-4 Laboratory Duplicate RPD for lead (34%), performed on L2269124-01, 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:  Melissa Sturgis

Title: Technical Director/Representative

Date: 12/15/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 14:56
 Analyst: AJK
 Percent Solids: 69%

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	1
Benzene	0.066		mg/kg	0.062	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	1
Toluene	1.2		mg/kg	0.12	0.067	1
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	1
Ethylbenzene	1.9		mg/kg	0.12	0.017	1
p/m-Xylene	6.0		mg/kg	0.25	0.069	1
o-Xylene	1.1		mg/kg	0.12	0.036	1
Xylenes, Total	7.1		mg/kg	0.12	0.036	1
Isopropylbenzene	11.		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.37		mg/kg	0.25	0.024	1
1,2,4-Trimethylbenzene	5.2		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02
 Client ID: GPR286-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 13:14
 Analyst: NLK
 Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00035	1
Benzene	ND		mg/kg	0.00086	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00094	1
1,2-Dibromoethane	ND		mg/kg	0.00086	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00096	1
o-Xylene	ND		mg/kg	0.0017	0.00050	1
Xylenes, Total	ND		mg/kg	0.0017	0.00050	1
Isopropylbenzene	0.00039	J	mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0034	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
 Client ID: GPR286-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 13:40
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:06
 Analyst: NLK
 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	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	119		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05
 Client ID: GPR286-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 14:32
 Analyst: NLK
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00095	1
o-Xylene	ND		mg/kg	0.0017	0.00049	1
Xylenes, Total	ND		mg/kg	0.0017	0.00049	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 11:45
 Analyst: JIC
 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	0.10	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	ND		mg/kg	0.052	0.0073	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	0.051	J	mg/kg	0.052	0.015	1
Xylenes, Total	0.051	J	mg/kg	0.052	0.015	1
Isopropylbenzene	0.57		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	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	146	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07
 Client ID: GPR286-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:24
 Analyst: NLK
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
Benzene	ND		mg/kg	0.0010	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00052	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00059	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00059	1
Xylenes, Total	ND		mg/kg	0.0020	0.00059	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0040	0.00039	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0040	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08
 Client ID: GPR286-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 15:50
 Analyst: NLK
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
Benzene	ND		mg/kg	0.0010	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00052	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00059	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00059	1
Xylenes, Total	ND		mg/kg	0.0020	0.00059	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0040	0.00039	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0040	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	118		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 16:15
 Analyst: NLK
 Percent Solids: 65%

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	0.036	J	mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	0.80		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	0.051	J	mg/kg	0.11	0.015	1
p/m-Xylene	0.13	J	mg/kg	0.22	0.061	1
o-Xylene	0.055	J	mg/kg	0.11	0.032	1
Xylenes, Total	0.18	J	mg/kg	0.11	0.032	1
Isopropylbenzene	0.048	J	mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	0.087	J	mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 13:17
 Analyst: NLK
 Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles 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	0.0015	J	mg/kg	0.0033	0.00092	1
o-Xylene	0.0040		mg/kg	0.0016	0.00048	1
Xylenes, Total	0.0055	J	mg/kg	0.0016	0.00048	1
Isopropylbenzene	0.0058		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.0031	J	mg/kg	0.0033	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	226	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 11:22
 Analyst: JIC
 Percent Solids: 65%

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	0.061		mg/kg	0.057	0.019	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	1
Toluene	0.96		mg/kg	0.11	0.062	1
1,2-Dibromoethane	ND		mg/kg	0.057	0.034	1
Ethylbenzene	0.075	J	mg/kg	0.11	0.016	1
p/m-Xylene	0.21	J	mg/kg	0.23	0.064	1
o-Xylene	0.039	J	mg/kg	0.11	0.033	1
Xylenes, Total	0.25	J	mg/kg	0.11	0.033	1
Isopropylbenzene	0.21		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	163	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 10:59
 Analyst: JIC
 Percent Solids: 58%

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	0.064	J	mg/kg	0.066	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	1
Toluene	0.99		mg/kg	0.13	0.072	1
1,2-Dibromoethane	ND		mg/kg	0.066	0.039	1
Ethylbenzene	0.075	J	mg/kg	0.13	0.019	1
p/m-Xylene	0.20	J	mg/kg	0.26	0.074	1
o-Xylene	0.083	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.28	J	mg/kg	0.13	0.038	1
Isopropylbenzene	0.27		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.035	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.13	J	mg/kg	0.26	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	159	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12
 Client ID: GPR270-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 17:33
 Analyst: NLK
 Percent Solids: 70%

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	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:00
 Analyst: NLK
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0014	J	mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.00026	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0029	0.00082	1
o-Xylene	0.00080	J	mg/kg	0.0015	0.00043	1
Xylenes, Total	0.00080	J	mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.00073	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.00032	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	133	Q	70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:26
 Analyst: NLK
 Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0035	0.00035	1
Benzene	ND		mg/kg	0.00087	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00045	1
Toluene	ND		mg/kg	0.0017	0.00095	1
1,2-Dibromoethane	ND		mg/kg	0.00087	0.00051	1
Ethylbenzene	0.00060	J	mg/kg	0.0017	0.00025	1
p/m-Xylene	0.00099	J	mg/kg	0.0035	0.00098	1
o-Xylene	0.0023		mg/kg	0.0017	0.00051	1
Xylenes, Total	0.0033	J	mg/kg	0.0017	0.00051	1
Isopropylbenzene	0.0033		mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	0.00049	J	mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.00098	J	mg/kg	0.0035	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	151	Q	70-130
4-Bromofluorobenzene	188	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15
 Client ID: GPR270-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 18:52
 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	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	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	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 15:59
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:03
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 16:10
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:23
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-25
 Client ID: TB-221208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 00:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8011
 Analytical Date: 12/09/22 16:21
 Analyst: AMM

Extraction Method: EPA 8011
 Extraction Date: 12/09/22 13:25

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-25
 Client ID: TB-221208
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 00:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 12/13/22 10:44
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/09/22 14:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/09/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-25 Batch: WG1721462-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-05,07-08,12-15 Batch: WG1722715-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1722718-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 09:42
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-25 Batch: WG1722884-5					
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	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/13/22 10:51
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1722950-5					
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	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,10-11 Batch: WG1723588-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1723589-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-25 Batch: WG1721462-2									
1,2-Dibromoethane	73	Q	-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-05,07-08,12-15 Batch: WG1722715-3 WG1722715-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	93		92		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1722718-3 WG1722718-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	93		93		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-25 Batch: WG1722884-3 WG1722884-4								
Methyl tert butyl ether	98		95		63-130	3		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	115		115		70-130	0		20
Isopropylbenzene	100		100		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 %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		106		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	88		88		70-130
Dibromofluoromethane	113		112		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1722950-3 WG1722950-4								
Methyl tert butyl ether	92		93		66-130	1		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		96		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	96		96		70-130	0		30
Ethylbenzene	93		89		70-130	4		30
p/m-Xylene	98		95		70-130	3		30
o-Xylene	96		93		70-130	3		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	109		106		70-130



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,10-11 Batch: WG1723588-3 WG1723588-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	96		96		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 Batch: WG1723589-3 WG1723589-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	95		96		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:15
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.	E	mg/kg	0.24	0.029	1
Fluorene	1.0		mg/kg	0.24	0.023	1
Phenanthrene	4.9		mg/kg	0.14	0.028	1
Anthracene	1.2		mg/kg	0.14	0.046	1
Pyrene	5.5		mg/kg	0.14	0.023	1
Benzo(a)anthracene	3.1		mg/kg	0.14	0.026	1
Chrysene	3.3		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	4.5		mg/kg	0.14	0.040	1
Benzo(a)pyrene	3.3		mg/kg	0.19	0.057	1
Benzo(ghi)perylene	2.3		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	125	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01 D
 Client ID: GPR286-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:11
 Analyst: LJG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	14.		mg/kg	1.2	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02
 Client ID: GPR286-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:39
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.4		mg/kg	0.25	0.031	1
Fluorene	0.27		mg/kg	0.25	0.025	1
Phenanthrene	1.4		mg/kg	0.15	0.031	1
Anthracene	0.39		mg/kg	0.15	0.050	1
Pyrene	1.1		mg/kg	0.15	0.025	1
Benzo(a)anthracene	0.97		mg/kg	0.15	0.029	1
Chrysene	0.95		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	1.4		mg/kg	0.15	0.043	1
Benzo(a)pyrene	1.1		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	0.67		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	60		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03
 Client ID: GPR286-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 09:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:03
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	ND		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.037	1
Pyrene	ND		mg/kg	0.11	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.021	1
Chrysene	ND		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:27
 Analyst: JG
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.0		mg/kg	0.23	0.028	1
Fluorene	0.36		mg/kg	0.23	0.022	1
Phenanthrene	1.9		mg/kg	0.14	0.028	1
Anthracene	0.56		mg/kg	0.14	0.044	1
Pyrene	2.3		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.7		mg/kg	0.14	0.026	1
Chrysene	1.8		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	2.5		mg/kg	0.14	0.038	1
Benzo(a)pyrene	2.0		mg/kg	0.18	0.056	1
Benzo(ghi)perylene	1.2		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	110		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05
 Client ID: GPR286-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:51
 Analyst: JG
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.59		mg/kg	0.24	0.029	1
Fluorene	0.054	J	mg/kg	0.24	0.023	1
Phenanthrene	0.24		mg/kg	0.14	0.029	1
Anthracene	0.077	J	mg/kg	0.14	0.047	1
Pyrene	0.34		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.20		mg/kg	0.14	0.027	1
Chrysene	0.20		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.25		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.22		mg/kg	0.19	0.058	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	148	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 15:52
 Analyst: JG
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.2		mg/kg	0.18	0.022	1
Fluorene	0.071	J	mg/kg	0.18	0.018	1
Phenanthrene	0.35		mg/kg	0.11	0.022	1
Anthracene	0.094	J	mg/kg	0.11	0.036	1
Pyrene	0.38		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.27		mg/kg	0.11	0.021	1
Chrysene	0.29		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.39		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.33		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.21		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	61		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07
 Client ID: GPR286-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:16
 Analyst: JG
 Percent Solids: 63%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.		mg/kg	0.26	0.032	1
Fluorene	0.46		mg/kg	0.26	0.025	1
Phenanthrene	2.1		mg/kg	0.16	0.032	1
Anthracene	0.90		mg/kg	0.16	0.051	1
Pyrene	1.6		mg/kg	0.16	0.026	1
Benzo(a)anthracene	1.7		mg/kg	0.16	0.029	1
Chrysene	1.8		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	2.8		mg/kg	0.16	0.044	1
Benzo(a)pyrene	2.5		mg/kg	0.21	0.064	1
Benzo(ghi)perylene	1.9		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08
 Client ID: GPR286-16-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 16:40
 Analyst: JG
 Percent Solids: 67%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.24	0.030	1
Fluorene	ND		mg/kg	0.24	0.024	1
Phenanthrene	0.031	J	mg/kg	0.15	0.030	1
Anthracene	ND		mg/kg	0.15	0.048	1
Pyrene	0.060	J	mg/kg	0.15	0.024	1
Benzo(a)anthracene	0.036	J	mg/kg	0.15	0.028	1
Chrysene	0.032	J	mg/kg	0.15	0.025	1
Benzo(b)fluoranthene	ND		mg/kg	0.15	0.041	1
Benzo(a)pyrene	ND		mg/kg	0.20	0.060	1
Benzo(ghi)perylene	ND		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:04
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.	E	mg/kg	0.25	0.031	1
Fluorene	2.1		mg/kg	0.25	0.025	1
Phenanthrene	5.8		mg/kg	0.15	0.031	1
Anthracene	2.7		mg/kg	0.15	0.049	1
Pyrene	6.1		mg/kg	0.15	0.025	1
Benzo(a)anthracene	3.2		mg/kg	0.15	0.028	1
Chrysene	3.6		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	3.7		mg/kg	0.15	0.043	1
Benzo(a)pyrene	3.1		mg/kg	0.20	0.062	1
Benzo(ghi)perylene	2.2		mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09 D
 Client ID: GPR270-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:34
 Analyst: LJG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	15.		mg/kg	1.3	0.15	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:28
 Analyst: JG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.	E	mg/kg	0.25	0.030	1
Fluorene	6.0		mg/kg	0.25	0.024	1
Phenanthrene	22.	E	mg/kg	0.15	0.030	1
Anthracene	5.3		mg/kg	0.15	0.049	1
Pyrene	13.	E	mg/kg	0.15	0.025	1
Benzo(a)anthracene	4.8		mg/kg	0.15	0.028	1
Chrysene	5.4		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	3.3		mg/kg	0.15	0.042	1
Benzo(a)pyrene	2.9		mg/kg	0.20	0.061	1
Benzo(ghi)perylene	1.4		mg/kg	0.20	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	189	Q	23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10 D
 Client ID: GPR270-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:20
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 08:44
 Analyst: LJG
 Percent Solids: 65%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.		mg/kg	1.2	0.15	5
Phenanthrene	23.		mg/kg	0.75	0.15	5
Pyrene	13.		mg/kg	0.75	0.12	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 17:52
 Analyst: JG
 Percent Solids: 58%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.1		mg/kg	0.28	0.034	1
Fluorene	5.4		mg/kg	0.28	0.027	1
Phenanthrene	19.	E	mg/kg	0.17	0.034	1
Anthracene	4.7		mg/kg	0.17	0.054	1
Pyrene	12.	E	mg/kg	0.17	0.028	1
Benzo(a)anthracene	4.4		mg/kg	0.17	0.031	1
Chrysene	4.8		mg/kg	0.17	0.029	1
Benzo(b)fluoranthene	3.5		mg/kg	0.17	0.047	1
Benzo(a)pyrene	2.8		mg/kg	0.22	0.068	1
Benzo(ghi)perylene	1.4		mg/kg	0.22	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	196	Q	23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11 D
 Client ID: GPR270-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:30
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 07:58
 Analyst: LJG
 Percent Solids: 58%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	20.		mg/kg	0.84	0.17	5
Pyrene	12.		mg/kg	0.84	0.14	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12
 Client ID: GPR270-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:40
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:15
 Analyst: JG
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.23	0.028	1
Fluorene	ND		mg/kg	0.23	0.022	1
Phenanthrene	0.053	J	mg/kg	0.14	0.028	1
Anthracene	ND		mg/kg	0.14	0.045	1
Pyrene	0.054	J	mg/kg	0.14	0.023	1
Benzo(a)anthracene	0.045	J	mg/kg	0.14	0.026	1
Chrysene	0.037	J	mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	ND		mg/kg	0.14	0.039	1
Benzo(a)pyrene	ND		mg/kg	0.18	0.057	1
Benzo(ghi)perylene	ND		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:40
 Analyst: JG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.7		mg/kg	0.22	0.027	1
Fluorene	5.0		mg/kg	0.22	0.022	1
Phenanthrene	13.	E	mg/kg	0.13	0.027	1
Anthracene	4.6		mg/kg	0.13	0.043	1
Pyrene	12.	E	mg/kg	0.13	0.022	1
Benzo(a)anthracene	4.8		mg/kg	0.13	0.025	1
Chrysene	4.9		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	4.0		mg/kg	0.13	0.037	1
Benzo(a)pyrene	3.2		mg/kg	0.18	0.054	1
Benzo(ghi)perylene	1.6		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	178	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13 D
 Client ID: GPR270-09-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 11:50
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 08:21
 Analyst: LJG
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	13.		mg/kg	0.67	0.14	5
Pyrene	11.		mg/kg	0.67	0.11	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:04
 Analyst: JG
 Percent Solids: 62%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	19.	E	mg/kg	0.26	0.032	1
Fluorene	1.2		mg/kg	0.26	0.026	1
Phenanthrene	5.7		mg/kg	0.16	0.032	1
Anthracene	2.9		mg/kg	0.16	0.051	1
Pyrene	2.7		mg/kg	0.16	0.026	1
Benzo(a)anthracene	2.1		mg/kg	0.16	0.030	1
Chrysene	2.4		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	2.9		mg/kg	0.16	0.044	1
Benzo(a)pyrene	2.8		mg/kg	0.21	0.064	1
Benzo(ghi)perylene	3.5		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14 D
 Client ID: GPR270-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/15/22 09:08
 Analyst: LJG
 Percent Solids: 62%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	20.		mg/kg	1.3	0.16	5

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15
 Client ID: GPR270-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:27
 Analyst: JG
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 00:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.030	J	mg/kg	0.20	0.024	1
Fluorene	0.046	J	mg/kg	0.20	0.019	1
Phenanthrene	0.31		mg/kg	0.12	0.024	1
Anthracene	0.091	J	mg/kg	0.12	0.038	1
Pyrene	0.42		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.32		mg/kg	0.12	0.022	1
Chrysene	0.37		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.42		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.32		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.20		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23
 Client ID: FB-221208-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:00
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/14/22 10:28
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/13/22 21:49

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	95		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	66		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24
 Client ID: FB-221208-2
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 14:55
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 12/14/22 10:44
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 12/13/22 21:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.01	J	ug/l	0.10	0.01	1
Phenanthrene	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	73		15-120
4-Terphenyl-d14	67		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E
Analytical Date: 12/11/22 09:26
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-15 Batch: WG1721610-1					
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	109		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	91		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM
Analytical Date: 12/13/22 13:50
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 12/13/22 09:47

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23-24 Batch: WG1722646-1					
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	0.06		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	89		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	64		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-15 Batch: WG1721610-2 WG1721610-3								
Naphthalene	82		76		40-140	8		50
Fluorene	86		80		40-140	7		50
Phenanthrene	78		75		40-140	4		50
Anthracene	82		77		40-140	6		50
Pyrene	87		83		35-142	5		50
Benzo(a)anthracene	85		80		40-140	6		50
Chrysene	83		79		40-140	5		50
Benzo(b)fluoranthene	92		86		40-140	7		50
Benzo(a)pyrene	93		86		40-140	8		50
Benzo(ghi)perylene	86		81		40-140	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	117		23-120
2-Fluorobiphenyl	98		90		30-120
4-Terphenyl-d14	90		87		18-120



Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23-24 Batch: WG1722646-2 WG1722646-3								
Naphthalene	67		41		40-140	48	Q	40
Fluorene	72		43		40-140	50	Q	40
Phenanthrene	72		44		40-140	48	Q	40
Anthracene	75		45		40-140	50	Q	40
Pyrene	74		47		26-127	45	Q	40
Benzo(a)anthracene	78		47		40-140	50	Q	40
Chrysene	80		46		40-140	54	Q	40
Benzo(b)fluoranthene	78		46		40-140	52	Q	40
Benzo(a)pyrene	83		48		40-140	53	Q	40
Benzo(ghi)perylene	82		46		40-140	56	Q	40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	110		66		23-120
2-Fluorobiphenyl	69		42		15-120
4-Terphenyl-d14	71		46		41-149



METALS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-01

Date Collected: 12/08/22 09:30

Client ID: GPR286-01-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

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	2.80	0.150	1	12/10/22 00:05	12/10/22 14:22	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-02

Date Collected: 12/08/22 09:40

Client ID: GPR286-03-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	295		mg/kg	2.94	0.158	1	12/10/22 00:05	12/10/22 14:12	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-03

Date Collected: 12/08/22 09:50

Client ID: GPR286-05-SS01

Date Received: 12/08/22

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	4.98		mg/kg	2.26	0.121	1	12/10/22 00:05	12/10/22 14:16	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04
 Client ID: GPR286-07-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:00
 Date Received: 12/08/22
 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	142		mg/kg	2.66	0.142	1	12/10/22 00:05	12/10/22 14:19	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05
 Client ID: GPR286-08-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 69%

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	2.88	0.154	1	12/10/22 00:05	12/10/22 14:46	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06
 Client ID: GPR286-11-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 10:20
 Date Received: 12/08/22
 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	48.9		mg/kg	2.19	0.118	1	12/10/22 00:05	12/10/22 14:50	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-07

Date Collected: 12/08/22 10:30

Client ID: GPR286-13-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	302		mg/kg	3.13	0.168	1	12/10/22 00:05	12/10/22 14:53	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-08

Date Collected: 12/08/22 10:40

Client ID: GPR286-16-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.52		mg/kg	2.93	0.157	1	12/10/22 00:05	12/10/22 14:57	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-09

Date Collected: 12/08/22 11:10

Client ID: GPR270-01-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	341		mg/kg	3.01	0.161	1	12/10/22 00:05	12/10/22 15:00	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10

Date Collected: 12/08/22 11:20

Client ID: GPR270-03-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	450		mg/kg	3.05	0.164	1	12/10/22 00:05	12/10/22 15:03	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-11

Date Collected: 12/08/22 11:30

Client ID: GPR270-07-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 58%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	537		mg/kg	3.42	0.184	1	12/10/22 00:05	12/10/22 15:07	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-12

Date Collected: 12/08/22 11:40

Client ID: GPR270-08-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	14.9		mg/kg	2.85	0.153	1	12/10/22 00:05	12/10/22 15:10	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-13

Date Collected: 12/08/22 11:50

Client ID: GPR270-09-SS01

Date Received: 12/08/22

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	400		mg/kg	2.62	0.140	1	12/10/22 00:05	12/10/22 15:14	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-14

Date Collected: 12/08/22 12:00

Client ID: GPR270-11-SS01

Date Received: 12/08/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	589		mg/kg	3.04	0.163	1	12/10/22 00:05	12/10/22 15:17	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15
 Client ID: GPR270-13-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/08/22 12:10
 Date Received: 12/08/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	215		mg/kg	2.36	0.126	1	12/10/22 00:05	12/10/22 15:27	EPA 3050B	1,6010D	NTB



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-23

Date Collected: 12/08/22 12:00

Client ID: FB-221208-1

Date Received: 12/08/22

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	12/10/22 17:00	12/15/22 08:39	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-24

Date Collected: 12/08/22 14:55

Client ID: FB-221208-2

Date Received: 12/08/22

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	12/10/22 17:00	12/15/22 10:01	EPA 3005A	1,6020B	EGW



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-15 Batch: WG1721469-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/10/22 00:05	12/10/22 14:05	1,6010D	NTB

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: WG1721513-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	12/10/22 17:00	12/15/22 09:17	1,6020B	EGW

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 Batch: WG1721469-2 SRM Lot Number: D116-540								
Lead, Total	104		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1721513-2								
Lead, Total	98		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 QC Batch ID: WG1721469-3 QC Sample: L2269124-01 Client ID: GPR286-01-SS01												
Lead, Total	143	58.8	224	138	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1721513-3 QC Sample: L2269204-01 Client ID: MS Sample												
Lead, Total	1.516	530	528.7	99		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 QC Batch ID: WG1721469-4 QC Sample: L2269124-01 Client ID: GPR286-01-SS01						
Lead, Total	143	201	mg/kg	34	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-01

Date Collected: 12/08/22 09:30

Client ID: GPR286-01-SS01

Date Received: 12/08/22

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	68.7		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-02

Date Collected: 12/08/22 09:40

Client ID: GPR286-03-SS01

Date Received: 12/08/22

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	64.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-03

Date Collected: 12/08/22 09:50

Client ID: GPR286-05-SS01

Date Received: 12/08/22

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	87.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-04

Date Collected: 12/08/22 10:00

Client ID: GPR286-07-SS01

Date Received: 12/08/22

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	71.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-05

Date Collected: 12/08/22 10:10

Client ID: GPR286-08-SS01

Date Received: 12/08/22

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	68.8		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-06

Date Collected: 12/08/22 10:20

Client ID: GPR286-11-SS01

Date Received: 12/08/22

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	89.1		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-07

Date Collected: 12/08/22 10:30

Client ID: GPR286-13-SS01

Date Received: 12/08/22

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	63.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-08

Date Collected: 12/08/22 10:40

Client ID: GPR286-16-SS01

Date Received: 12/08/22

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	67.4		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-09

Date Collected: 12/08/22 11:10

Client ID: GPR270-01-SS01

Date Received: 12/08/22

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	64.9		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-10

Date Collected: 12/08/22 11:20

Client ID: GPR270-03-SS01

Date Received: 12/08/22

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	64.9		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-11

Date Collected: 12/08/22 11:30

Client ID: GPR270-07-SS01

Date Received: 12/08/22

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	58.2		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-12

Date Collected: 12/08/22 11:40

Client ID: GPR270-08-SS01

Date Received: 12/08/22

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	69.8		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-13

Date Collected: 12/08/22 11:50

Client ID: GPR270-09-SS01

Date Received: 12/08/22

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	73.6		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-14

Date Collected: 12/08/22 12:00

Client ID: GPR270-11-SS01

Date Received: 12/08/22

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	62.4		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-15

Date Collected: 12/08/22 12:10

Client ID: GPR270-13-SS01

Date Received: 12/08/22

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	82.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-16

Date Collected: 12/08/22 13:00

Client ID: GPR1047-01-SS01

Date Received: 12/08/22

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	97.5		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**SAMPLE RESULTS**

Lab ID: L2269124-17

Date Collected: 12/08/22 13:10

Client ID: GPR1047-02-SS01

Date Received: 12/08/22

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	84.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	7.5		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-18

Date Collected: 12/08/22 13:20

Client ID: GPR1047-03-SS01

Date Received: 12/08/22

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	92.5		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-19

Date Collected: 12/08/22 13:30

Client ID: GPR1047-04-SS01

Date Received: 12/08/22

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	97.0		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	8.8		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-20

Date Collected: 12/08/22 13:35

Client ID: GPR1047-06-SS01

Date Received: 12/08/22

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	96.3		%	0.100	NA	1	-	12/09/22 17:56	121,2540G	MF
pH (H)	9.0		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-21

Date Collected: 12/08/22 13:50

Client ID: GPR1047-07-SS01

Date Received: 12/08/22

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	94.3		%	0.100	NA	1	-	12/09/22 18:26	121,2540G	MF
pH (H)	10.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

SAMPLE RESULTS

Lab ID: L2269124-22

Date Collected: 12/08/22 00:00

Client ID: DUP-54

Date Received: 12/08/22

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	96.5		%	0.100	NA	1	-	12/09/22 18:26	121,2540G	MF
pH (H)	10.7		SU	-	NA	1	-	12/14/22 21:54	1,9045D	AAS



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 16-22 Batch: WG1723412-1								
pH	100		-		99-101	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269124

Report Date: 12/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1721563-1 QC Sample: L2269124-01 Client ID: GPR286-01-SS01						
Solids, Total	68.7	67.8	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-22 QC Batch ID: WG1721568-1 QC Sample: L2266778-08 Client ID: DUP Sample						
Solids, Total	88.1	87.5	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1723412-2 QC Sample: L2267361-01 Client ID: DUP Sample						
pH	8.4	8.3	SU	1		5

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-01B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-01C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-01D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-01F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-02B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-02C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-02D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-02F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-03B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-03C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-03D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-03F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-04B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-04C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-04D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-04F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-05A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-05B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-05C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-05D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-05F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-06A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-06B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-06C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-06D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-06F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-07A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2269124-07B	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-07C	Vial water preserved	B	NA		2.1	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-07D	Plastic 2oz unpreserved for TS	B	NA		2.1	Y	Absent		TS(7)
L2269124-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2269124-07F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2269124-08A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-08B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-08C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-08D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-08F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-09A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2269124-09B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260H(14),PA-8260HLW(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-09C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260H(14),PA-8260HLW(14)
L2269124-09D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-09F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-10A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-10B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-10C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-10D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-10F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-11A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-11B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-11C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-11D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-11F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-12A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-12B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-12C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-12D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-12F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-13A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-13B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-13C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-13D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-13F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)

Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269124**Project Number:** 200.00135.006**Report Date:** 12/15/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-14A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-14B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-14C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-14D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-14F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-15A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2269124-15B	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-15C	Vial water preserved	A	NA		4.7	Y	Absent	09-DEC-22 12:37	PA-8260HLW(14)
L2269124-15D	Plastic 2oz unpreserved for TS	A	NA		4.7	Y	Absent		TS(7)
L2269124-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		PB-TI(180)
L2269124-15F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		PA-PAH(14)
L2269124-16A	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		TS(7),PH-9045(1)
L2269124-17A	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		TS(7),PH-9045(1)
L2269124-18A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-19A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-20A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-21A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-22A	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		TS(7),PH-9045(1)
L2269124-23A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23C	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2269124-23D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2269124-23E	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2269124-23F	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2269124-23G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-23H	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-24A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12152214:37
Lab Number: L2269124
Report Date: 12/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269124-24B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-24C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-24D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-24E	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2269124-24F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-24G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-PAHSIM-LVI(7)
L2269124-25A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-25B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2269124-25C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2269124-25D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269124
Report Date: 12/15/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269124

Project Number: 200.00135.006

Report Date: 12/15/22

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 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~12151~~ ~~1783~~ 18559

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: 12/09/22

ALPHA Job #: L2269124

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											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				
		Date	Time																					
69124-01	GPR 286-01-SS01	12/8	0930	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"/>	<input type="checkbox"/>	
-02	GPR 286-03-SS01		0940			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-03	GPR 286-05-SS01		0950			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-04	GPR 286-07-SS01		1000			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-05	GPR 286-08-SS01		1010			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-06	GPR 286-11-SS01		1020			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-07	GPR 286-13-SS01		1030			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-08	GPR 286-16-SS01		1040			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-09	GPR 270-01-SS01		1110			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-10	GPR 270-03-SS01		1120			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Container Type
Preservative

G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/8 1456	<i>[Signature]</i>	1456 12-8
<i>[Signature]</i>	12-8-20	<i>[Signature]</i>	12-8-20
<i>[Signature]</i>	12-8-21	<i>[Signature]</i>	12-8-22

5/AMM
12/9/22
0110

12/9/22 0110

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 2 OF 3

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~12101~~ 17833 18559

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 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: 12/09/22

ALPHA Job #: L2209124

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
		Date	Time		
09124-11	GPR 270-07-SS01	12/6	1130	S	TS
-12	GPR 270-08-SS01		1140		
-13	GPR 270-09-SS01		1150		
-14	GPR 270-11-SS01		1200		
-15	GPR 270-13-SS01		1210		
-16	GPR 1047-01-SS01		1300		
-17	GPR 1047-02-SS01		1310		
-18	GPR 1047-03-SS01		1320		
-19	GPR 1047-04-SS01		1330		
-20	GPR 1047-06-SS01		1335		

VOCs (8260)	SVOCs (8270)	Lead	pH														
<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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	G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	11/16/22	<i>[Signature]</i>	12-8-22 145
<i>[Signature]</i>	12-8-22 18	<i>[Signature]</i>	12-8-22 210
<i>[Signature]</i>	12-8-22 212	<i>[Signature]</i>	

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.

SWAN
 12/9/22
 0110
 9
 12/9/22 0110



CHAIN OF CUSTODY

PAGE 3 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:

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

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~1781~~ ~~1783~~ 18559

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date:

Time:

Date Rec'd in Lab: 12/09/22

ALPHA Job #: L2269124

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

SAMPLE 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	VOCs (8260)	SVOCs (8270)	Lead	PH											
		Date	Time																	
69124-21	GPR1047-07-5501	12/8	1350	S	TS	<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"/>
	GPR1047-07-5501			S		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-22	DUP-54	12/8	-	S		<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"/>
-23	FB-22-1208-1		1200	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-24	FB-22-1208-2		15	W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-25	TB-22-1208			W		<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1455

Container Type

Preservative

G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:

Date/Time

Received By:

Date/Time

STATE
 12/9/22
 0110

Relinquished By: *[Signature]* Date/Time: 12/8 1456
 Received By: *[Signature]* Date/Time: 12-8-22 2100

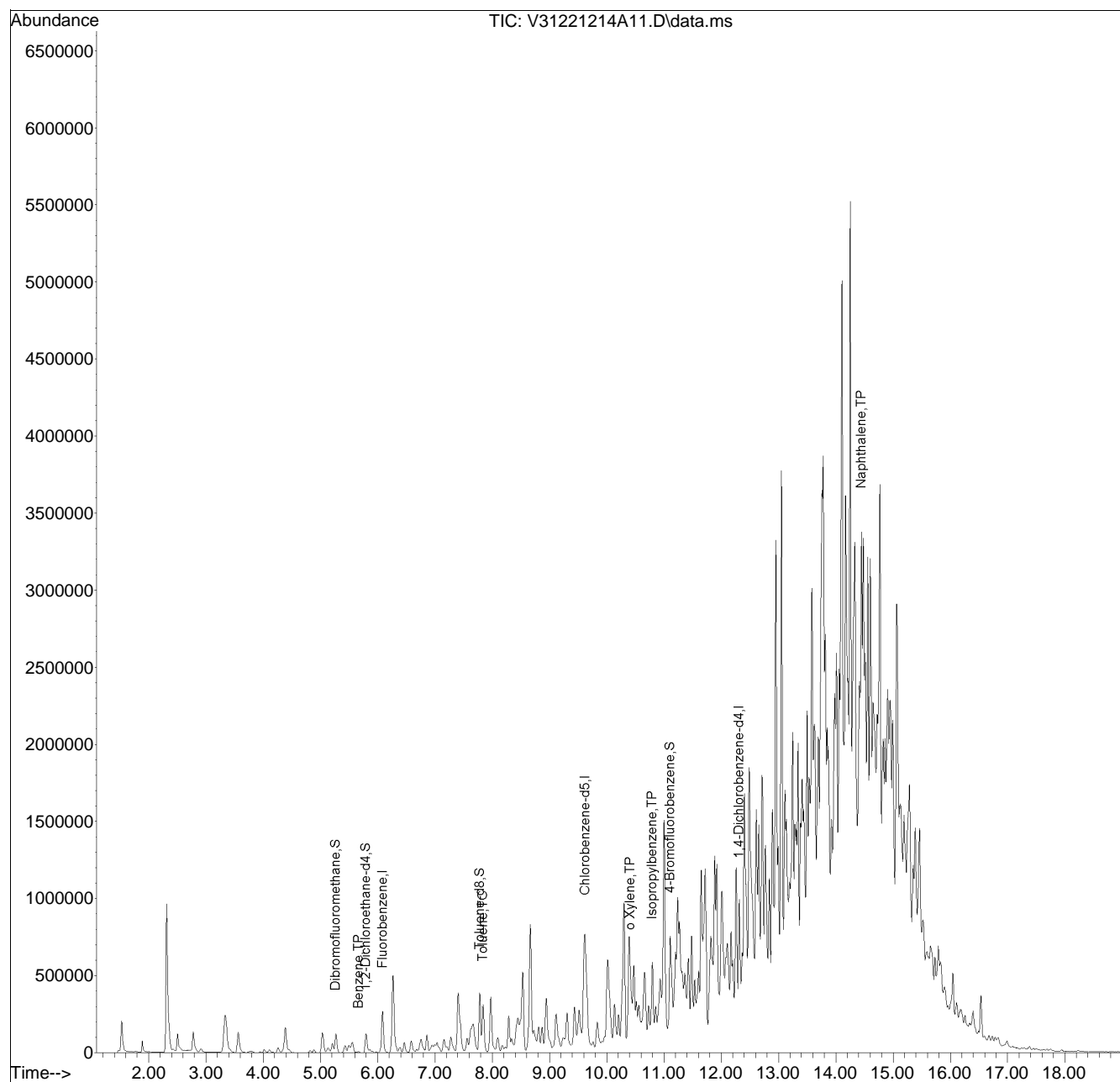
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A11.D
Acq On : 14 Dec 2022 11:45 am
Operator : VOA131:JIC
Sample : L2269124-06,31H,6.11,5,0.100,,A,R2F
Misc : WG1723588,ICAL19531
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 14 13:27:05 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

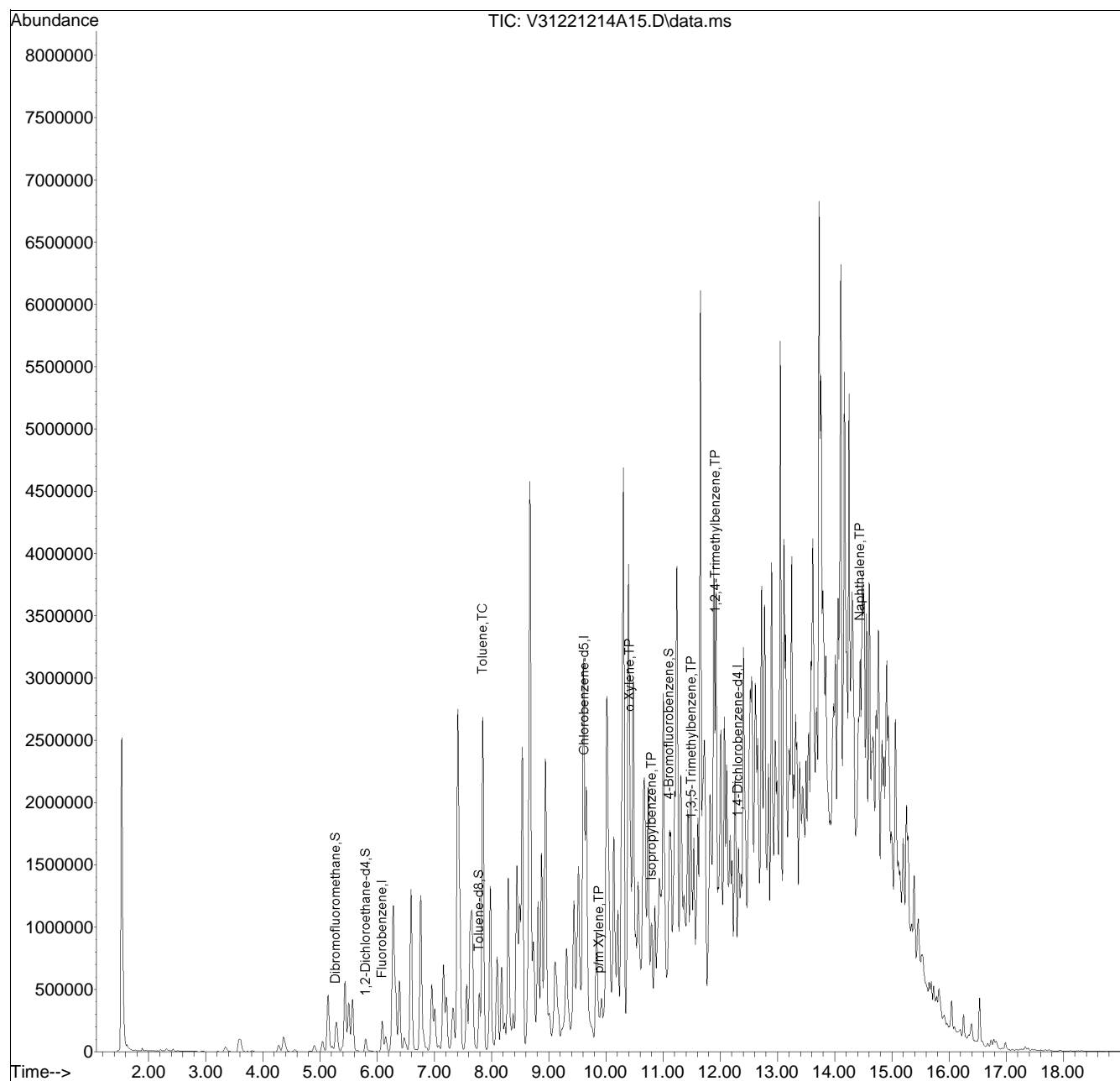


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A15.D
Acq On : 14 Dec 2022 01:17 pm
Operator : VOA131:NLK
Sample : L2269124-09,31,4.71,5,,C,R2F
Misc : WG1723589,ICAL19531
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 14 13:48:55 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

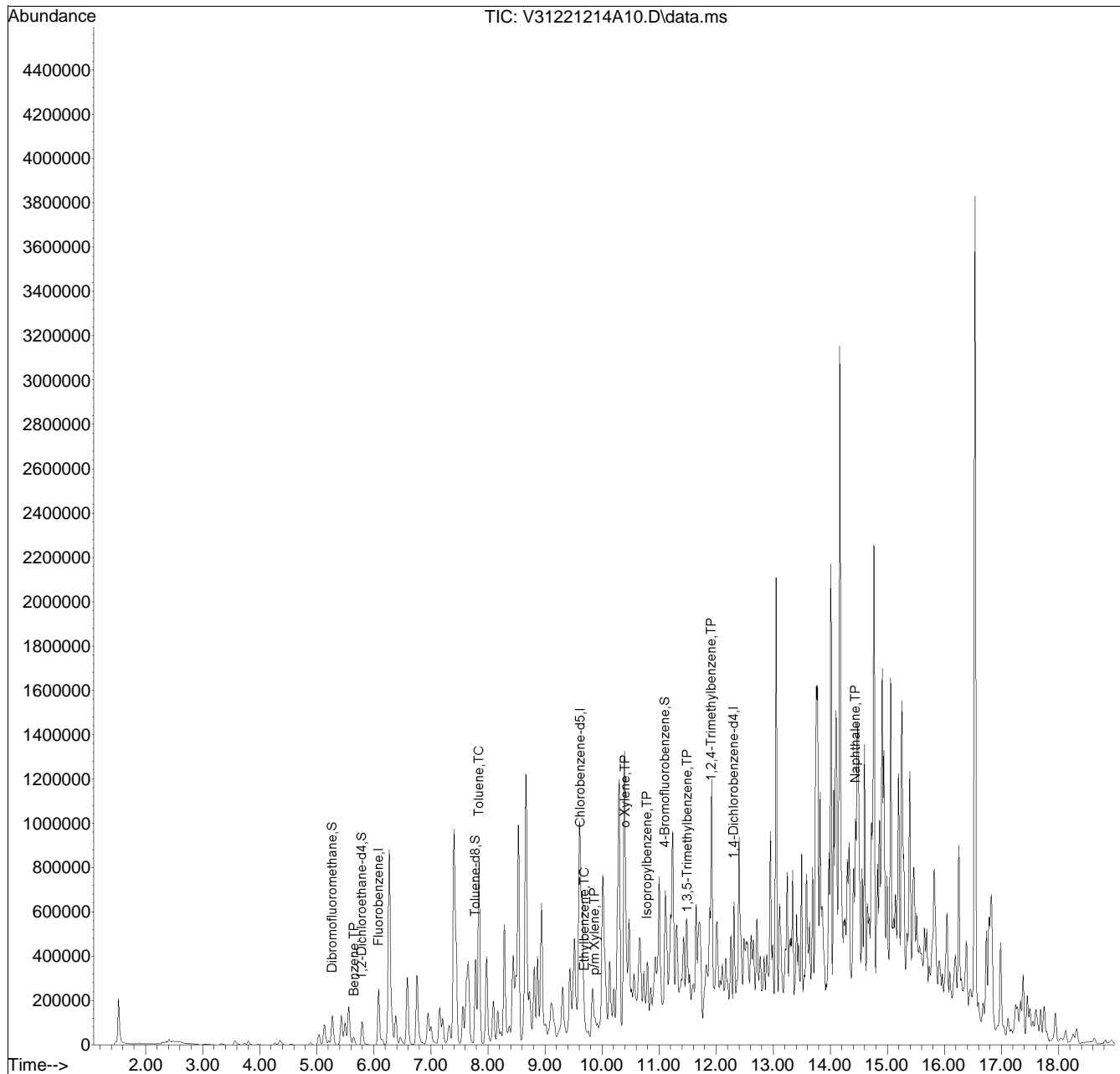


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
Data File : V31221214A10.D
Acq On : 14 Dec 2022 11:22 am
Operator : VOA131:JIC
Sample : L2269124-10,31H,4.40,5,0.100,,A,R2F
Misc : WG1723588,ICAL19531
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 14 13:26:39 2022
Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

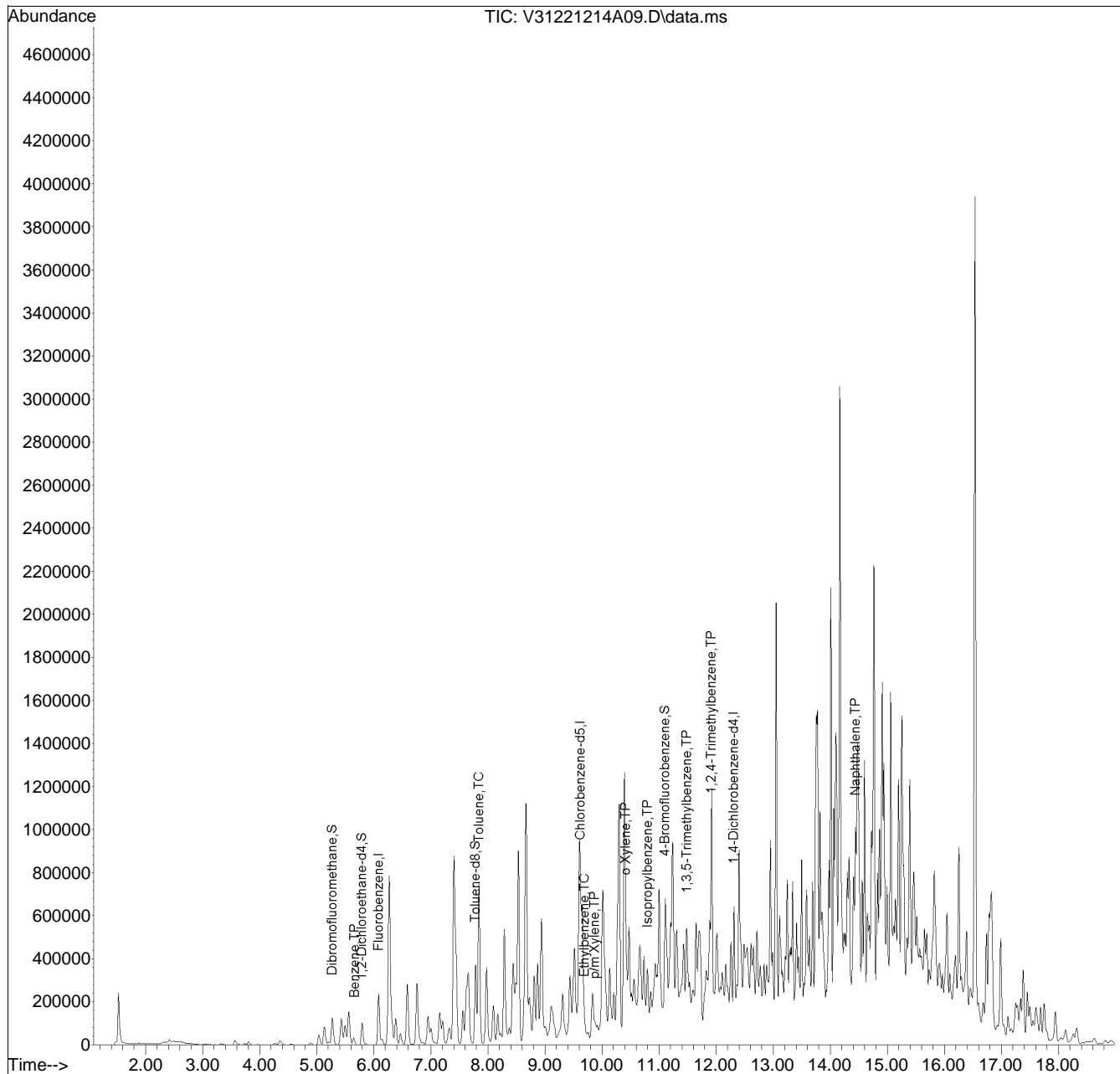


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A09.D
 Acq On : 14 Dec 2022 10:59 am
 Operator : VOA131:JIC
 Sample : L2269124-11,31H,4.47,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 14 13:26:12 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

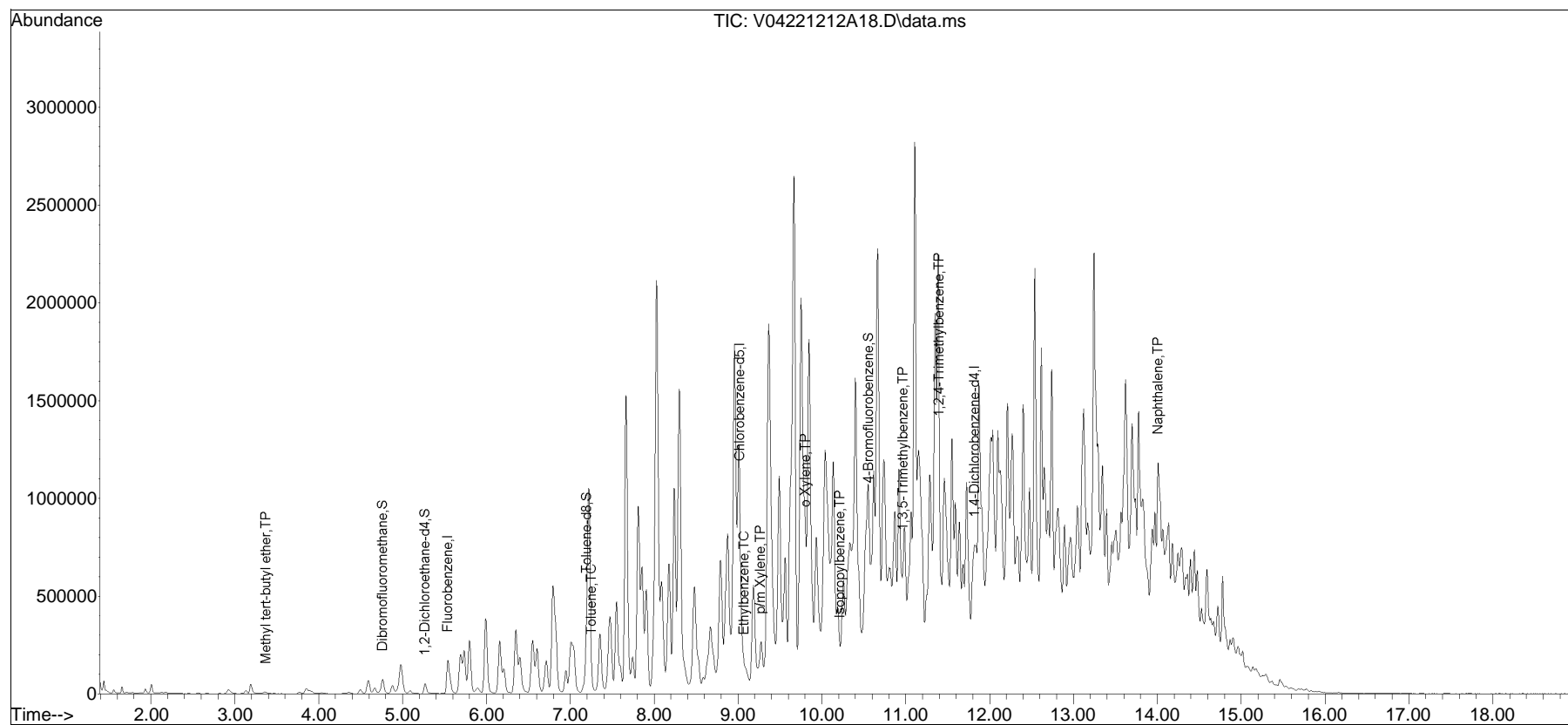


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\221212A\
Data File : V04221212A18.D
Acq On : 12 Dec 2022 6:00 pm
Operator : VOA104:NLK
Sample : L2269124-13,31,4.63,5,,B,R2F
Misc : WG1722715,ICAL19471
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 13 11:44:38 2022
Quant Method : I:\VOLATILES\VOA104\2022\221212A\V104_221109N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Nov 10 09:20:34 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04221212A01.D•

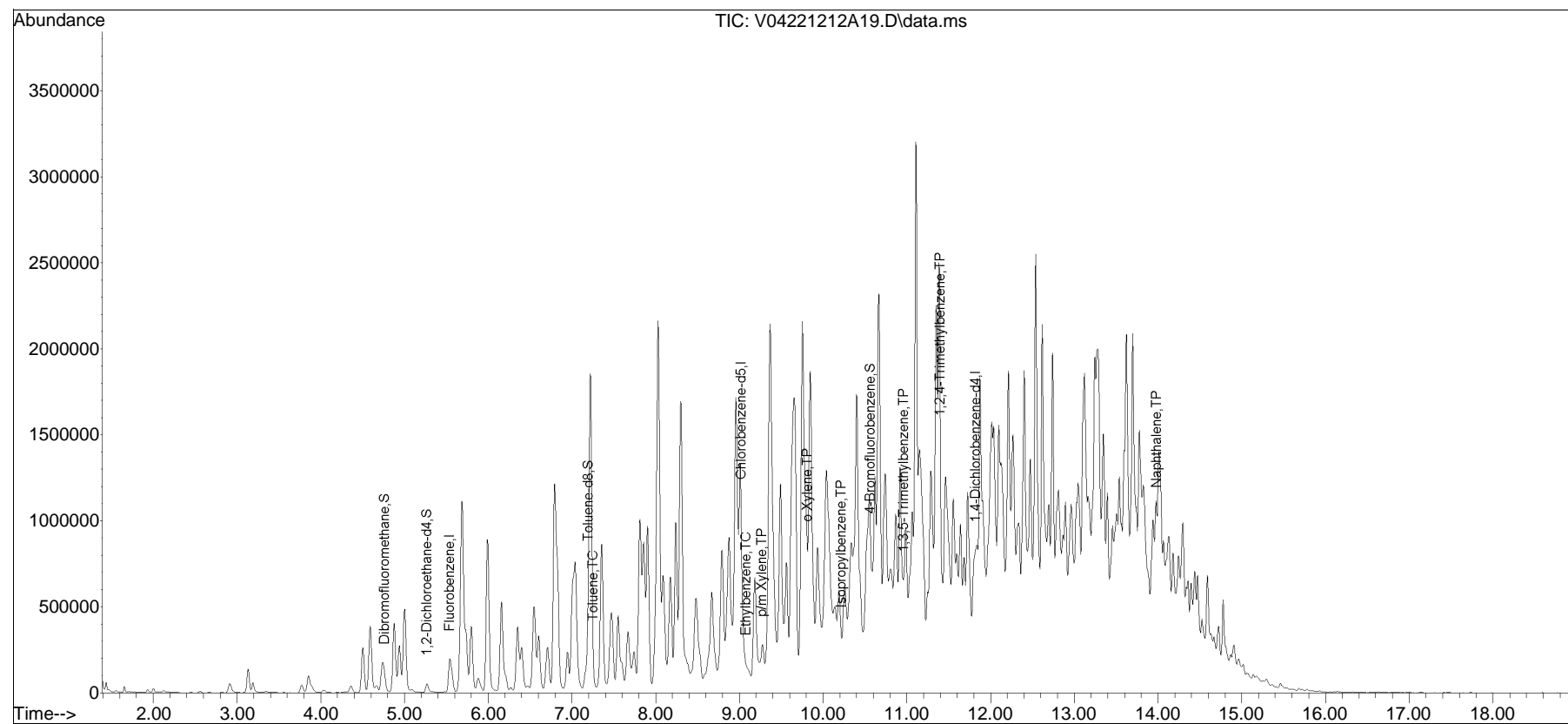


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\221212A\
Data File : V04221212A19.D
Acq On : 12 Dec 2022 6:26 pm
Operator : VOA104:NLK
Sample : L2269124-14,31,4.59,5,,B,R2F
Misc : WG1722715,ICAL19471
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 13 11:44:55 2022
Quant Method : I:\VOLATILES\VOA104\2022\221212A\V104_221109N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Nov 10 09:20:34 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04221212A01.D•





ANALYTICAL REPORT

Lab Number:	L2269475
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.006
Report Date:	12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269475-01	GPR1101-01-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:00	12/09/22
L2269475-02	GPR1101-02-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:10	12/09/22
L2269475-03	GPR1101-03-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:20	12/09/22
L2269475-04	GPR1101-04-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:30	12/09/22
L2269475-05	GPR1101-05-SS01	SOIL	PHILADELPHIA, PA	12/09/22 10:40	12/09/22
L2269475-06	TB-221209		PHILADELPHIA, PA	12/09/22 00:00	12/09/22
L2269475-07	FB-221209		PHILADELPHIA, PA	12/09/22 11:00	12/09/22

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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

L2269475-06: A sample identified as "TB-221209" was listed on the Chain of Custody, but not received. This was verified by the client.

L2269475-07: A sample identified as "FB-221209" was listed on the Chain of Custody, but not received. This was verified by the client.

Volatile Organics

L2269475-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (212%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2269475-02: 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.

L2269475-02: 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.

L2269475-03: 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.

L2269475-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (170%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

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: 12/16/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:54
 Analyst: JIC
 Percent Solids: 70%

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	1
Benzene	0.10		mg/kg	0.047	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.093	0.024	1
Toluene	0.27		mg/kg	0.093	0.051	1
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	1
Ethylbenzene	0.055	J	mg/kg	0.093	0.013	1
p/m-Xylene	0.36		mg/kg	0.19	0.052	1
o-Xylene	0.083	J	mg/kg	0.093	0.027	1
Xylenes, Total	0.44	J	mg/kg	0.093	0.027	1
Isopropylbenzene	3.9		mg/kg	0.093	0.010	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	0.40		mg/kg	0.19	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	212	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 19:44
 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	0.15	0.015	1
Benzene	0.080		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.074	0.019	1
Toluene	0.20		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.16		mg/kg	0.074	0.010	1
p/m-Xylene	0.64		mg/kg	0.15	0.041	1
o-Xylene	0.12		mg/kg	0.074	0.021	1
Xylenes, Total	0.76		mg/kg	0.074	0.021	1
Isopropylbenzene	0.39		mg/kg	0.074	0.0080	1
1,3,5-Trimethylbenzene	0.064	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 13:40
 Analyst: AJK
 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	0.0029	0.00030	1
Benzene	0.00043	J	mg/kg	0.00074	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0012	J	mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00043	1
Ethylbenzene	0.00082	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.010		mg/kg	0.0029	0.00082	1
o-Xylene	0.0039		mg/kg	0.0015	0.00043	1
Xylenes, Total	0.014		mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.045		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.00082	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0037		mg/kg	0.0029	0.00049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	149	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03
 Client ID: GPR1101-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:20
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:31
 Analyst: JIC
 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	0.20	0.020	1
Benzene	0.022	J	mg/kg	0.050	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.10	0.026	1
Toluene	0.30		mg/kg	0.10	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.050	0.029	1
Ethylbenzene	0.047	J	mg/kg	0.10	0.014	1
p/m-Xylene	0.075	J	mg/kg	0.20	0.056	1
o-Xylene	0.066	J	mg/kg	0.10	0.029	1
Xylenes, Total	0.14	J	mg/kg	0.10	0.029	1
Isopropylbenzene	1.1		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	0.70		mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	170	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D2
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 14:03
 Analyst: AJK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
-----------	--------	-----------	-------	----	-----	-----------------

Volatile Organics by EPA 5035 High - Westborough Lab						
--	--	--	--	--	--	--

1,2,4-Trimethylbenzene	51.		mg/kg	1.6	0.26	10
------------------------	-----	--	-------	-----	------	----

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/12/22 20:36
 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	0.31	0.031	2
Benzene	0.23		mg/kg	0.078	0.026	2
1,2-Dichloroethane	ND		mg/kg	0.16	0.040	2
Toluene	0.29		mg/kg	0.16	0.085	2
1,2-Dibromoethane	ND		mg/kg	0.078	0.046	2
Ethylbenzene	0.30		mg/kg	0.16	0.022	2
p/m-Xylene	1.6		mg/kg	0.31	0.087	2
o-Xylene	1.1		mg/kg	0.16	0.045	2
Xylenes, Total	2.7		mg/kg	0.16	0.045	2
Isopropylbenzene	1.9		mg/kg	0.16	0.017	2
1,3,5-Trimethylbenzene	21.		mg/kg	0.31	0.030	2
1,2,4-Trimethylbenzene	48.	E	mg/kg	0.31	0.052	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05
 Client ID: GPR1101-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:40
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 12/14/22 12:08
 Analyst: JIC
 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	0.0024	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	0.0012	J	mg/kg	0.0024	0.00067	1
o-Xylene	0.00097	J	mg/kg	0.0012	0.00035	1
Xylenes, Total	0.0022	J	mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.0065		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0020	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/12/22 12:22
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04 Batch: WG1722718-5					
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	136	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-04 Batch: WG1723588-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260D
Analytical Date: 12/14/22 09:00
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,05 Batch: WG1723589-5					
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	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04 Batch: WG1722718-3 WG1722718-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	92		93		70-130	1		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	93		95		70-130	2		30
1,2-Dibromoethane	90		88		70-130	2		30
Ethylbenzene	95		97		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	100		103		70-130	3		30
Isopropylbenzene	98		100		70-130	2		30
1,3,5-Trimethylbenzene	97		98		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	93		93		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1723588-3 WG1723588-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,05 Batch: WG1723589-3 WG1723589-4								
Methyl tert butyl ether	87		92		66-130	6		30
Benzene	88		90		70-130	2		30
1,2-Dichloroethane	83		87		70-130	5		30
Toluene	89		91		70-130	2		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	90		91		70-130	1		30
p/m-Xylene	88		91		70-130	3		30
o-Xylene	86		89		70-130	3		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	94		91		70-130	3		30
1,2,4-Trimethylbenzene	92		88		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	110		108		70-130
Dibromofluoromethane	95		96		70-130



SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:51
 Analyst: SLR
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.5		mg/kg	0.24	0.029	1
Fluorene	3.2		mg/kg	0.24	0.023	1
Phenanthrene	10.	E	mg/kg	0.14	0.029	1
Anthracene	1.4		mg/kg	0.14	0.046	1
Pyrene	1.4		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.50		mg/kg	0.14	0.027	1
Chrysene	0.57		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.38		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.30		mg/kg	0.19	0.058	1
Indeno(1,2,3-cd)pyrene	0.23		mg/kg	0.19	0.033	1
Benzo(ghi)perylene	0.25		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	231	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01 D
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 08:28
 Analyst: CMM
 Percent Solids: 70%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	12.		mg/kg	0.28	0.058	2

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
 Client ID: GPR1101-02-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:27
 Analyst: SLR
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.22		mg/kg	0.20	0.025	1
Fluorene	0.12	J	mg/kg	0.20	0.020	1
Phenanthrene	0.33		mg/kg	0.12	0.025	1
Anthracene	0.21		mg/kg	0.12	0.040	1
Pyrene	0.48		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.066	J	mg/kg	0.12	0.023	1
Chrysene	0.20		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.11	J	mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.11	J	mg/kg	0.16	0.050	1
Indeno(1,2,3-cd)pyrene	0.086	J	mg/kg	0.16	0.029	1
Benzo(ghi)perylene	0.18		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03
 Client ID: GPR1101-03-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:20
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 19:03
 Analyst: SLR
 Percent Solids: 73%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.37		mg/kg	0.22	0.027	1
Fluorene	0.53		mg/kg	0.22	0.022	1
Phenanthrene	1.2		mg/kg	0.13	0.027	1
Anthracene	0.22		mg/kg	0.13	0.044	1
Pyrene	0.32		mg/kg	0.13	0.022	1
Benzo(a)anthracene	0.16		mg/kg	0.13	0.025	1
Chrysene	0.18		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	0.17		mg/kg	0.13	0.038	1
Benzo(a)pyrene	0.14	J	mg/kg	0.18	0.055	1
Indeno(1,2,3-cd)pyrene	0.12	J	mg/kg	0.18	0.031	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	126	Q	23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D2
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 12:34
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Phenanthrene	40.		mg/kg	3.0	0.62	25

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04 D
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/16/22 08:52
 Analyst: CMM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	1.0	0.12	5
Fluorene	17.		mg/kg	1.0	0.098	5
Phenanthrene	46.	E	mg/kg	0.61	0.12	5
Anthracene	6.9		mg/kg	0.61	0.20	5
Pyrene	8.3		mg/kg	0.61	0.10	5
Benzo(a)anthracene	1.3		mg/kg	0.61	0.11	5
Chrysene	2.7		mg/kg	0.61	0.10	5
Benzo(b)fluoranthene	0.67		mg/kg	0.61	0.17	5
Benzo(a)pyrene	0.60	J	mg/kg	0.81	0.25	5
Indeno(1,2,3-cd)pyrene	0.26	J	mg/kg	0.81	0.14	5
Benzo(ghi)perylene	0.50	J	mg/kg	0.81	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	38		30-120
4-Terphenyl-d14	35		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05
 Client ID: GPR1101-05-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:40
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 12/11/22 18:15
 Analyst: SLR
 Percent Solids: 82%

Extraction Method: EPA 3546
 Extraction Date: 12/10/22 23:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.098	J	mg/kg	0.20	0.024	1
Fluorene	0.081	J	mg/kg	0.20	0.019	1
Phenanthrene	0.30		mg/kg	0.12	0.024	1
Anthracene	0.24		mg/kg	0.12	0.039	1
Pyrene	0.80		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.15		mg/kg	0.12	0.022	1
Chrysene	0.34		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.18		mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.20		mg/kg	0.16	0.048	1
Indeno(1,2,3-cd)pyrene	0.13	J	mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.32		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 12/11/22 09:26
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 12/10/22 00:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1721610-1					
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
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	91		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1721610-2 WG1721610-3								
Naphthalene	82		76		40-140	8		50
Fluorene	86		80		40-140	7		50
Phenanthrene	78		75		40-140	4		50
Anthracene	82		77		40-140	6		50
Pyrene	87		83		35-142	5		50
Benzo(a)anthracene	85		80		40-140	6		50
Chrysene	83		79		40-140	5		50
Benzo(b)fluoranthene	92		86		40-140	7		50
Benzo(a)pyrene	93		86		40-140	8		50
Indeno(1,2,3-cd)pyrene	99		93		40-140	6		50
Benzo(ghi)perylene	86		81		40-140	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	131	Q	117		23-120
2-Fluorobiphenyl	98		90		30-120
4-Terphenyl-d14	90		87		18-120

METALS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01
 Client ID: GPR1101-01-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:00
 Date Received: 12/09/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	379		mg/kg	2.77	0.148	1	12/12/22 21:10	12/13/22 16:12	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02

Date Collected: 12/09/22 10:10

Client ID: GPR1101-02-SS01

Date Received: 12/09/22

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	380		mg/kg	2.44	0.131	1	12/12/22 21:10	12/13/22 16:17	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03

Date Collected: 12/09/22 10:20

Client ID: GPR1101-03-SS01

Date Received: 12/09/22

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	396		mg/kg	2.56	0.137	1	12/12/22 21:10	12/13/22 16:22	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-04
 Client ID: GPR1101-04-SS01
 Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:30
 Date Received: 12/09/22
 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	99.4		mg/kg	2.42	0.130	1	12/12/22 21:10	12/13/22 16:27	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-05

Date Collected: 12/09/22 10:40

Client ID: GPR1101-05-SS01

Date Received: 12/09/22

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	169		mg/kg	2.32	0.124	1	12/12/22 21:10	12/13/22 16:32	EPA 3050B	1,6010D	GCL



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

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): 01-05 Batch: WG1721903-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	12/12/22 21:10	12/13/22 13:50	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis**Batch Quality Control****Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1721903-2 SRM Lot Number: D116-540								
Lead, Total	89		-		83-117	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

<u>Parameter</u>	<u>Native Sample</u>	<u>MS Added</u>	<u>MS Found</u>	<u>MS %Recovery</u>	<u>Qual</u>	<u>MSD Found</u>	<u>MSD %Recovery</u>	<u>Qual</u>	<u>Recovery Limits</u>	<u>RPD</u>	<u>Qual</u>	<u>RPD Limits</u>
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1721903-3 QC Sample: L2269449-01 Client ID: MS Sample												
Lead, Total	1.99J	42.2	41.2	98		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269475

Report Date: 12/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1721903-4 QC Sample: L2269449-01 Client ID: DUP Sample						
Lead, Total	1.99J	3.41J	mg/kg	NC		20

INORGANICS & MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-01

Date Collected: 12/09/22 10:00

Client ID: GPR1101-01-SS01

Date Received: 12/09/22

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	69.9		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-02
Client ID: GPR1101-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 12/09/22 10:10
Date Received: 12/09/22
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	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

SAMPLE RESULTS

Lab ID: L2269475-03

Date Collected: 12/09/22 10:20

Client ID: GPR1101-03-SS01

Date Received: 12/09/22

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	73.4		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22**SAMPLE RESULTS**

Lab ID: L2269475-04

Date Collected: 12/09/22 10:30

Client ID: GPR1101-04-SS01

Date Received: 12/09/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Project Name: PHILADELPHIA REFINERY**Lab Number:** L2269475**Project Number:** 200.00135.006**Report Date:** 12/16/22**SAMPLE RESULTS**

Lab ID: L2269475-05

Date Collected: 12/09/22 10:40

Client ID: GPR1101-05-SS01

Date Received: 12/09/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	12/12/22 17:15	121,2540G	RM



Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.006

Lab Number: L2269475

Report Date: 12/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1722355-1 QC Sample: L2268495-01 Client ID: DUP Sample						
Solids, Total	90.8	84.1	%	8		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12162215:10
Lab Number: L2269475
Report Date: 12/16/22

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(*)
L2269475-01A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-01B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-01C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-01E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-01F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-02A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2269475-02B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260H(14),PA-8260HLW(14)
L2269475-02C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260H(14),PA-8260HLW(14)
L2269475-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-02E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-02F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-03A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-03B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-03C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-03E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-03F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-04A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-04B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-04C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-04E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Serial_No:12162215:10
Lab Number: L2269475
Report Date: 12/16/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269475-04F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)
L2269475-05A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2269475-05B	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-05C	Vial water preserved	A	NA		2.4	Y	Absent	10-DEC-22 06:16	PA-8260HLW(14)
L2269475-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2269475-05E	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		PA-PAH(14)
L2269475-05F	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

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.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.006

Lab Number: L2269475
Report Date: 12/16/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PHILADELPHIA REFINERY

Lab Number: L2269475

Project Number: 200.00135.006

Report Date: 12/16/22

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-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

Project Location: Philadelphia, PA

Project #: 200.00135.006

Project Manager: William Schmidt

ALPHA Quote #: ~~17853~~ 18559

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@hilco-global.com

Date Rec'd in Lab: 12/9/22

ALPHA Job #: L2269475

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

SAMPLE 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	VOCs (8260)	SVOCs (8270)	Lead	Shortlist											Sample Specific Comments	TOTAL # BOTTLES			
		Date	Time																					
69475-01	GPR1101-01-SS01	12/9	1000	S	TS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														4
- 02	GPR1101-02-SS01		1040	S		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														2
- 03	GPR1101-03-SS01		1020	S		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														4
- 04	GPR1101-04-SS01		1030	S		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														2
- 05	GPR1101-05-SS01		1040	S		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														4
- 06	TR-221209		-	W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														2
- 07	FB-221209		1100	W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														2
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														4
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														2

Container Type
Preservative

G	G	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	12/9/22 1508	<i>[Signature]</i>	12/9/22 1508
<i>[Signature]</i>	12/9/22 2100	<i>[Signature]</i>	12/9/22 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.

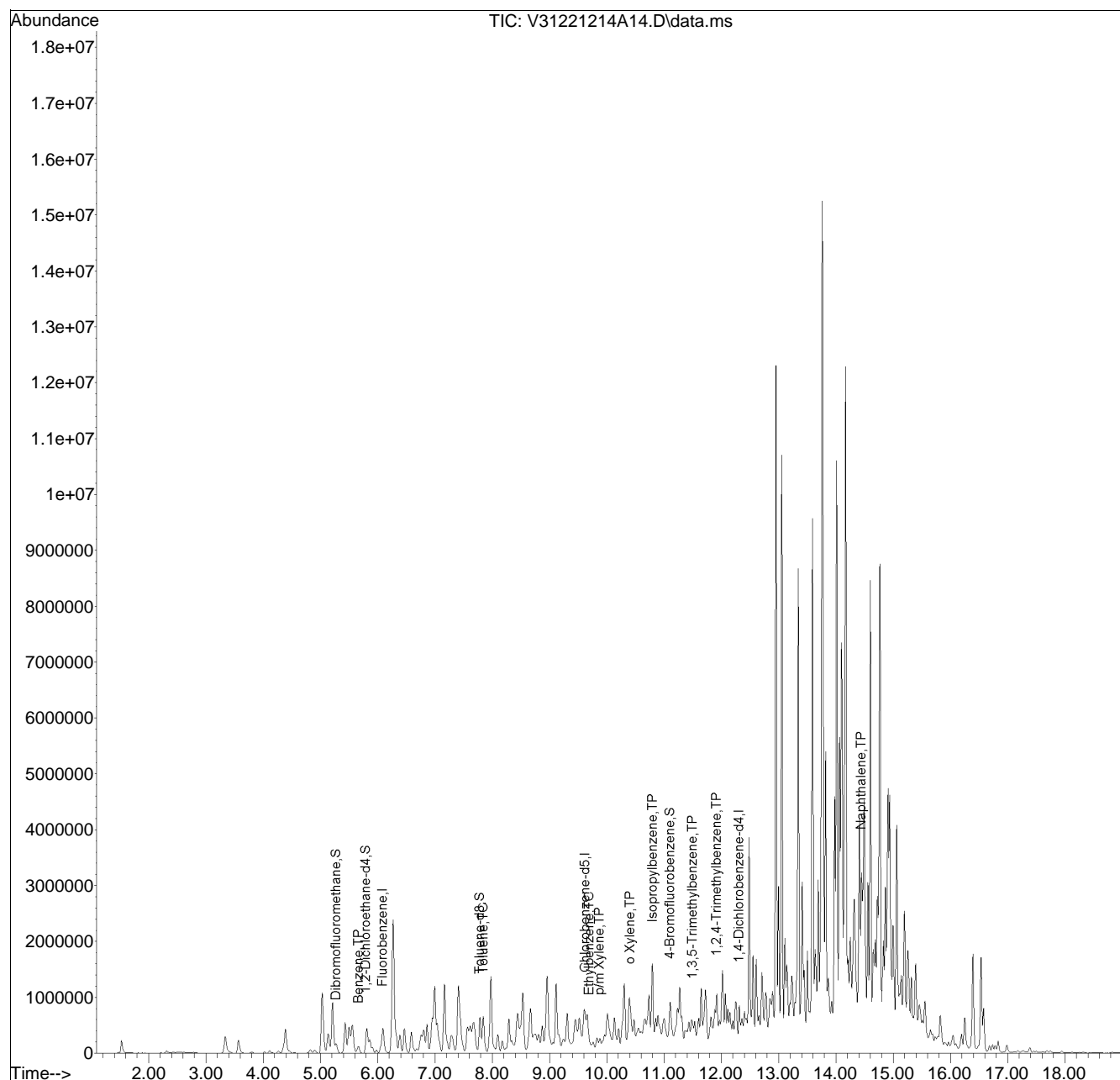
SPAL
12/10/22
0140
12/10/22
0140

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A14.D
 Acq On : 14 Dec 2022 12:54 pm
 Operator : VOA131:JIC
 Sample : L2269475-01,31H,4.99,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 14 13:48:04 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

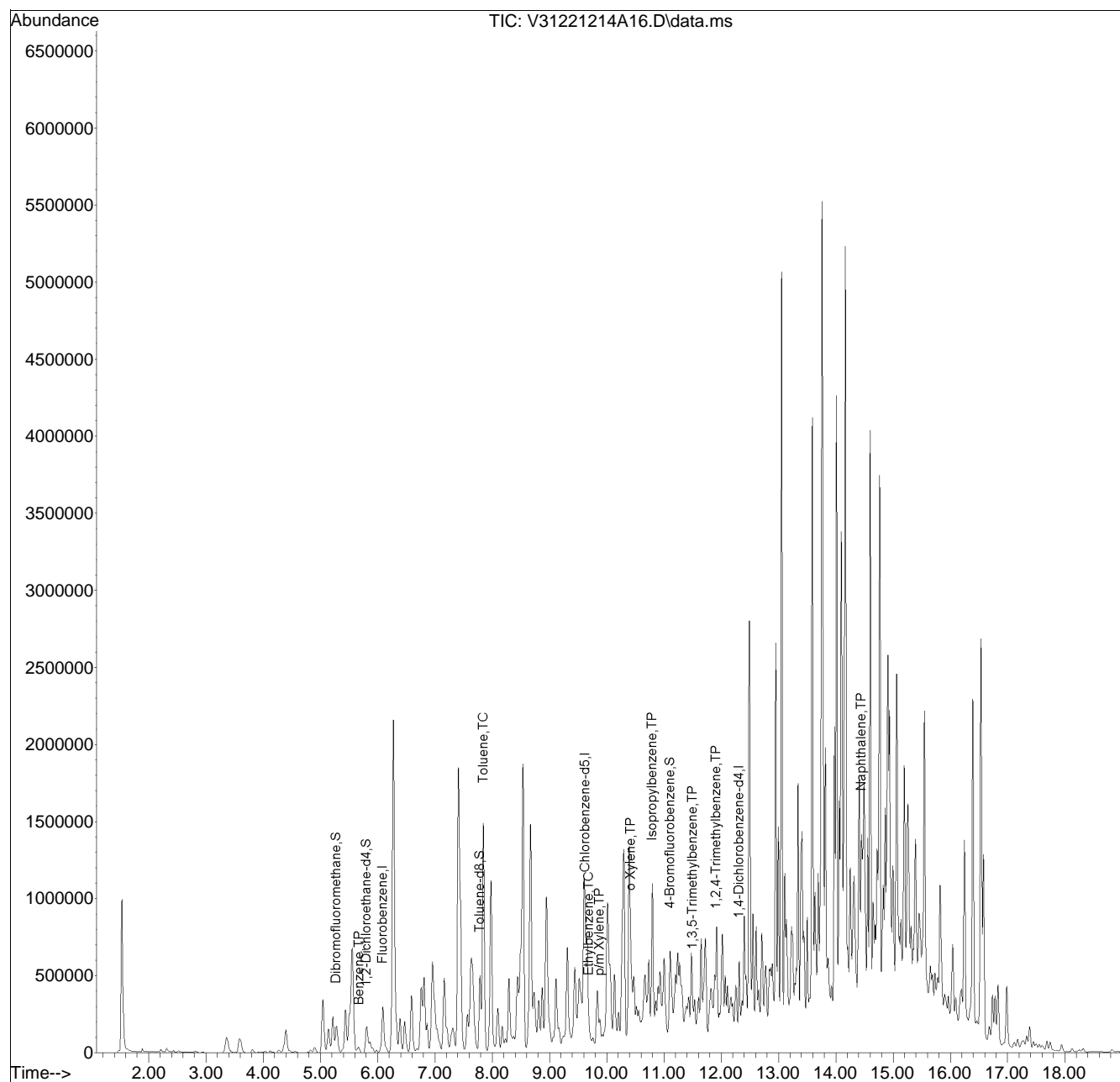


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A16.D
 Acq On : 14 Dec 2022 01:40 pm
 Operator : VOA131:AJK
 Sample : L2269475-02,31,4.27,5,,C,R2F
 Misc : WG1723589,ICAL19531
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 14 23:30:36 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•

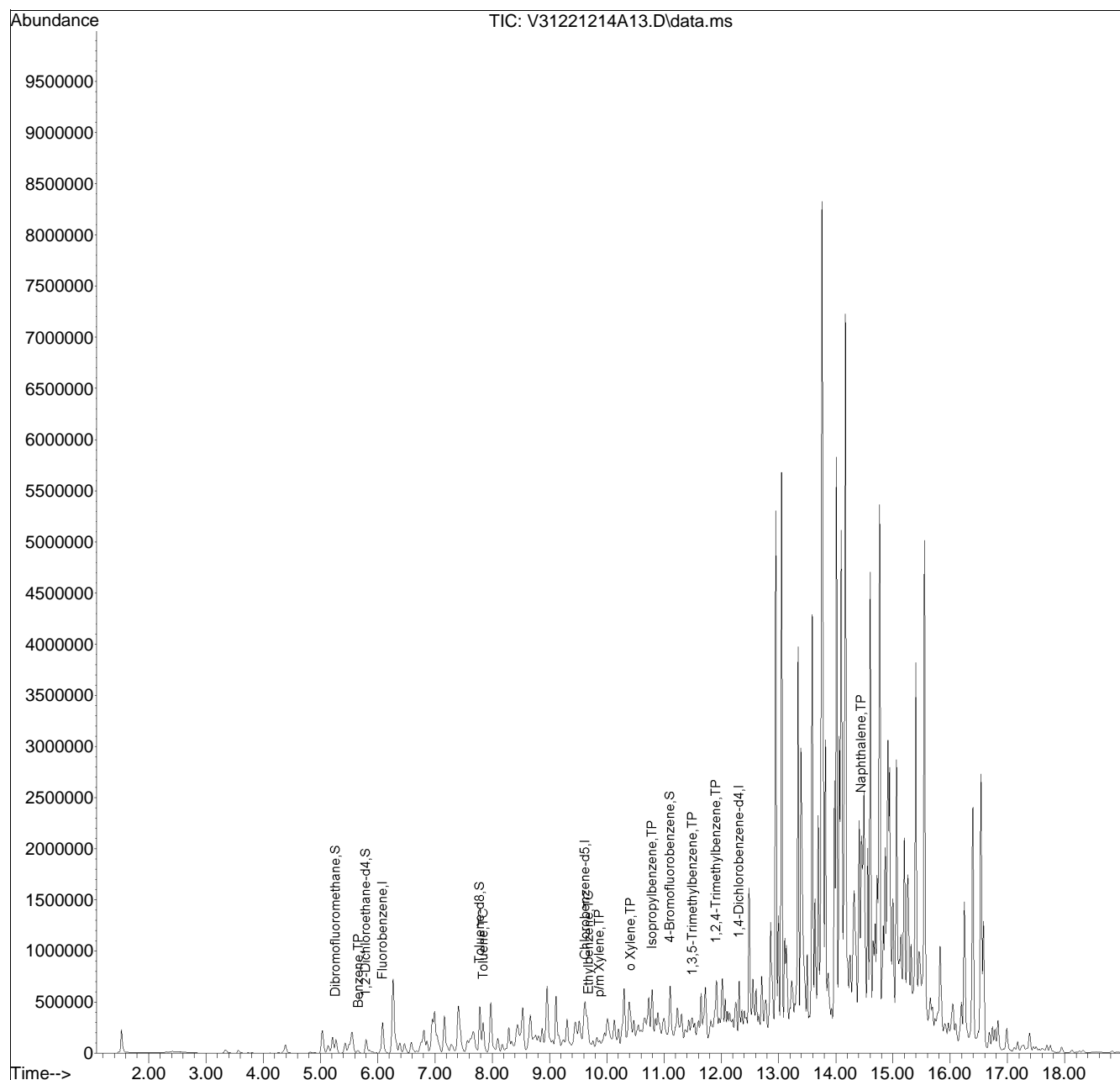


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221214A\
 Data File : V31221214A13.D
 Acq On : 14 Dec 2022 12:31 pm
 Operator : VOA131:JIC
 Sample : L2269475-03,31H,4.18,5,0.100,,A,R2F
 Misc : WG1723588,ICAL19531
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 14 13:28:01 2022
 Quant Method : I:\VOLATILES\VOA131\2022\221214A\V31_221128A_8260.m
 Quant Title : VOLATILES BY GC/MS
 QLast Update : Tue Nov 29 14:00:36 2022
 Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V31221214A01.D•





ANALYTICAL REPORT

Lab Number:	L2303552
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PESRM
Project Number:	200.00135.014.04
Report Date:	02/17/23

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-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2303552-01	TANK-281-LNAPL-20230118	OIL	PHILADELPHIA, PA	01/18/23 09:40	01/20/23

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

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: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Case Narrative (continued)

Report Submission

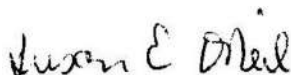
February 17, 2023: This final report includes the results of all requested analyses.

January 27, 2023: This is a preliminary report pending a decision regarding Phase 2 analyses.

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:



Susan O'Neil

Title: Technical Director/Representative

Date: 02/17/23

ORGANICS

SEMIVOLATILES

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
Client ID: TANK-281-LNAPL-20230118
Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
Date Received: 01/20/23
Field Prep: Not Specified

Sample Depth:

Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 15:27
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
cis/trans-Decalin	9.92	J	mg/kg	1.18	0.236	1
C1-Decalins	21.4		mg/kg	1.18	0.236	1
C2-Decalins	32.0		mg/kg	1.18	0.236	1
C3-Decalins	31.5		mg/kg	1.18	0.236	1
C4-Decalins	79.2		mg/kg	1.18	0.236	1
Naphthalene	4.65		mg/kg	2.37	0.682	1
C1-Naphthalenes	13.5		mg/kg	2.37	0.682	1
C2-Naphthalenes	110		mg/kg	2.37	0.682	1
C3-Naphthalenes	268		mg/kg	2.37	0.682	1
C4-Naphthalenes	272		mg/kg	2.37	0.682	1
2-Methylnaphthalene	9.36		mg/kg	2.37	0.612	1
1-Methylnaphthalene	13.5		mg/kg	2.37	0.747	1
Benzothiophene	ND		mg/kg	2.37	0.743	1
C1-Benzo(b)thiophenes	4.10		mg/kg	2.37	0.743	1
C2-Benzo(b)thiophenes	8.90		mg/kg	2.37	0.743	1
C3-Benzo(b)thiophenes	21.2		mg/kg	2.37	0.743	1
C4-Benzo(b)thiophenes	24.4		mg/kg	2.37	0.743	1
Biphenyl	ND		mg/kg	2.37	0.733	1
2,6-Dimethylnaphthalene	49.0		mg/kg	2.37	0.564	1
Dibenzofuran	2.88		mg/kg	2.37	0.747	1
Acenaphthylene	1.24	J	mg/kg	2.37	0.452	1
Acenaphthene	7.33		mg/kg	2.37	0.418	1
2,3,5-Trimethylnaphthalene	55.5		mg/kg	2.37	0.388	1
Fluorene	25.1		mg/kg	2.37	0.632	1
C1-Fluorenes	89.8		mg/kg	2.37	0.632	1
C2-Fluorenes	264		mg/kg	2.37	0.632	1
C3-Fluorenes	305		mg/kg	2.37	0.632	1
Dibenzothiophene	4.59		mg/kg	2.37	0.654	1

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
Client ID: TANK-281-LNAPL-20230118
Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
Date Received: 01/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
4-Methyl dibenzothiophene(4MDT)	30.5		mg/kg	2.37	0.654	1
2/3-Methyl dibenzothiophene(2MDT)	28.3		mg/kg	2.37	0.654	1
1-Methyl dibenzothiophene(1MDT)	14.2		mg/kg	2.37	0.654	1
C1-Dibenzothiophenes BS	75.0		mg/kg	2.37	0.654	1
C2-Dibenzothiophenes	186		mg/kg	2.37	0.654	1
C3-Dibenzothiophenes	245		mg/kg	2.37	0.654	1
C4-Dibenzothiophenes	129		mg/kg	2.37	0.654	1
Phenanthrene	9.22		mg/kg	2.37	0.786	1
3-Methylphenanthrene (3MP)	21.7		mg/kg	2.37	0.786	1
2-Methylphenanthrene (2MP)	14.9		mg/kg	2.37	0.786	1
2-Methylanthracene (2MA)	9.36		mg/kg	2.37	0.786	1
9/4-Methylphenanthrene (9MP)	36.4		mg/kg	2.37	0.786	1
1-Methylphenanthrene (1MP)	50.0		mg/kg	2.37	0.786	1
C1-Phenanthrenes/Anthracenes	142		mg/kg	2.37	0.786	1
C2-Phenanthrenes/Anthr BS	436		mg/kg	2.37	0.786	1
C3-Phenanthrenes/Anthracenes	410		mg/kg	2.37	0.786	1
C4-Phenanthrenes/Anthracenes	207		mg/kg	2.37	0.786	1
Retene	ND		mg/kg	2.37	0.582	1
Anthracene	10.5		mg/kg	2.37	0.489	1
Carbazole	ND		mg/kg	2.37	0.776	1
Fluoranthene	9.11		mg/kg	2.37	0.754	1
Benzo(b)fluorene	10.5		mg/kg	2.37	0.687	1
7H-Benzo(c)fluorene	6.42		mg/kg	2.37	0.687	1
2-Methylpyrene ¹	21.3		mg/kg	2.37	0.624	1
4-Methylpyrene ¹	26.2		mg/kg	2.37	0.624	1
1-Methylpyrene ¹	18.5		mg/kg	2.37	0.624	1
Pyrene	48.5		mg/kg	2.37	0.624	1
C1-Fluoranthenes/Pyrenes	125		mg/kg	2.37	0.624	1
C2-Fluoranthenes/Pyrenes	176		mg/kg	2.37	0.624	1
C3-Fluoranthenes/Pyrenes	201		mg/kg	2.37	0.624	1
C4-Fluoranthenes/Pyrenes	168		mg/kg	2.37	0.624	1
Naphthobenzothiophenes	27.5		mg/kg	2.37	0.664	1
C1-Naphthobenzothiophenes	97.5		mg/kg	2.37	0.664	1
C2-Naphthobenzothiophenes	137		mg/kg	2.37	0.664	1
C3-Naphthobenzothiophenes	112		mg/kg	2.37	0.664	1
C4-Naphthobenzothiophenes	81.8		mg/kg	2.37	0.664	1
Benz(a)anthracene	13.8		mg/kg	2.37	0.483	1

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
Client ID: TANK-281-LNAPL-20230118
Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
Date Received: 01/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Chrysene/Triphenylene	43.4		mg/kg	2.37	0.479	1
C1-Chrysenes	125		mg/kg	2.37	0.479	1
C2-Chrysenes BS	177		mg/kg	2.37	0.479	1
C3-Chrysenes	176		mg/kg	2.37	0.479	1
C4-Chrysenes	113		mg/kg	2.37	0.479	1
Benzo(b)fluoranthene	9.25		mg/kg	2.37	0.617	1
Benzo(j)+(k)fluoranthene	3.30		mg/kg	2.37	0.471	1
Benzo(a)fluoranthene	ND		mg/kg	2.37	0.471	1
Benzo(e)pyrene	15.7		mg/kg	2.37	0.489	1
Benzo(a)pyrene	10.5		mg/kg	2.37	0.677	1
Perylene	32.3		mg/kg	2.37	0.458	1
Indeno(1,2,3-cd)pyrene	2.71		mg/kg	2.37	0.644	1
Dibenz(a,h)+(a,c)anthracene	2.59		mg/kg	2.37	0.641	1
Benzo(g,h,i)perylene	5.04		mg/kg	2.37	0.630	1
Hopane (T19)	365		mg/kg	2.37	0.675	1
C23 Tricyclic Terpane (T4)	36.7		mg/kg	2.37	0.675	1
C24 Tricyclic Terpane (T5)	28.5		mg/kg	2.37	0.675	1
C25 Tricyclic Terpane (T6)	25.7		mg/kg	2.37	0.675	1
C24 Tetracyclic Terpane (T6a)	17.7		mg/kg	2.37	0.675	1
C26 Tricyclic Terpane-22S (T6b)	14.8		mg/kg	2.37	0.675	1
C26 Tricyclic Terpane-22R (T6c)	12.7		mg/kg	2.37	0.675	1
C28 Tricyclic Terpane-22S (T7)	15.2		mg/kg	2.37	0.675	1
C28 Tricyclic Terpane-22R (T8)	14.7		mg/kg	2.37	0.675	1
C29 Tricyclic Terpane-22S (T9)	14.2		mg/kg	2.37	0.675	1
C29 Tricyclic Terpane-22R (T10)	13.8		mg/kg	2.37	0.675	1
18a-22,29,30-Trisnorneohopane-TS (T11)	66.3		mg/kg	2.37	0.675	1
C30 Tricyclic Terpane-22S	17.3		mg/kg	2.37	0.675	1
C30 Tricyclic Terpane-22R	11.8		mg/kg	2.37	0.675	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	71.4		mg/kg	2.37	0.675	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	25.1		mg/kg	2.37	0.675	1
17a(H),21b(H)-25-Norhopane (T14b)	6.77		mg/kg	2.37	0.675	1
30-Norhopane (T15)	239		mg/kg	2.37	0.675	1
18a(H)-30-Norneohopane-C29Ts (T16)	71.5		mg/kg	2.37	0.675	1
17a(H)-Diahopane (X)	21.6		mg/kg	2.37	0.675	1
30-Normoretane (T17)	51.8		mg/kg	2.37	0.675	1
18a(H)&18b(H)-Oleananes (T18)	219		mg/kg	2.37	0.675	1
Moretane (T20)	61.4		mg/kg	2.37	0.675	1

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
Client ID: TANK-281-LNAPL-20230118
Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
Date Received: 01/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
30-Homohopane-22S (T21)	101		mg/kg	2.37	0.675	1
30-Homohopane-22R (T22)	83.6		mg/kg	2.37	0.675	1
30,31-Bishomohopane-22S (T26)	67.8		mg/kg	2.37	0.675	1
30,31-Bishomohopane-22R (T27)	55.4		mg/kg	2.37	0.675	1
30,31-Trishomohopane-22S (T30)	44.1		mg/kg	2.37	0.675	1
30,31-Trishomohopane-22R (T31)	25.4		mg/kg	2.37	0.675	1
Tetrakishomohopane-22S (T32)	28.6		mg/kg	2.37	0.675	1
Tetrakishomohopane-22R (T33)	22.1		mg/kg	2.37	0.675	1
Pentakishomohopane-22S (T34)	17.0		mg/kg	2.37	0.675	1
Pentakishomohopane-22R (T35)	17.9		mg/kg	2.37	0.675	1
13b(H),17a(H)-20S-Diacholestane (S4)	69.8		mg/kg	2.37	0.527	1
13b(H),17a(H)-20R-Diacholestane (S5)	38.9		mg/kg	2.37	0.527	1
13b,17a-20S-Methyldiacholestane (S8)	36.1		mg/kg	2.37	0.527	1
17a(H)20SC27/C29dia	87.1		mg/kg	2.37	0.527	1
17a(H)20RC27/C29dia	99.3		mg/kg	2.37	0.527	1
Unknown Sterane (S18)	18.6		mg/kg	2.37	0.527	1
13a,17b-20S-Ethyldiacholestane (S19)	5.31		mg/kg	2.37	0.527	1
14a,17a-20S-Methylcholestane (S20)	43.9		mg/kg	2.37	0.527	1
14a,17a-20R-Methylcholestane (S24)	49.7		mg/kg	2.37	0.527	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	50.9		mg/kg	2.37	0.527	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	61.9		mg/kg	2.37	0.527	1
14b(H),17b(H)-20R-Cholestane (S14)	49.4		mg/kg	2.37	0.527	1
14b(H),17b(H)-20S-Cholestane (S15)	50.8		mg/kg	2.37	0.527	1
14b,17b-20R-Methylcholestane (S22)	46.8		mg/kg	2.37	0.527	1
14b,17b-20S-Methylcholestane (S23)	60.6		mg/kg	2.37	0.527	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	67.6		mg/kg	2.37	0.527	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	38.8		mg/kg	2.37	0.527	1
C26,20R+C27,20S TAS	255		mg/kg	2.37	0.527	1
C28,20S TAS	197		mg/kg	2.37	0.527	1
C27,20R TAS	158		mg/kg	2.37	0.527	1
C28,20R TAS	167		mg/kg	2.37	0.527	1

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
 Client ID: TANK-281-LNAPL-20230118
 Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
 Date Received: 01/20/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	84		50-130
Phenanthrene-d10	99		50-130
Benzo(a)pyrene-d12	109		50-130
5B(H)Cholane-Surr	110		50-130

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 11:14
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01 Batch: WG1740061-1					
cis/trans-Decalin	ND		mg/kg	1.50	0.298
C1-Decalins	ND		mg/kg	1.50	0.298
C2-Decalins	ND		mg/kg	1.50	0.298
C3-Decalins	ND		mg/kg	1.50	0.298
C4-Decalins	ND		mg/kg	1.50	0.298
Naphthalene	ND		mg/kg	3.00	0.862
C1-Naphthalenes	ND		mg/kg	3.00	0.862
C2-Naphthalenes	ND		mg/kg	3.00	0.862
C3-Naphthalenes	ND		mg/kg	3.00	0.862
C4-Naphthalenes	ND		mg/kg	3.00	0.862
2-Methylnaphthalene	ND		mg/kg	3.00	0.774
1-Methylnaphthalene	ND		mg/kg	3.00	0.945
Benzothiophene	ND		mg/kg	3.00	0.940
C1-Benzo(b)thiophenes	ND		mg/kg	3.00	0.940
C2-Benzo(b)thiophenes	ND		mg/kg	3.00	0.940
C3-Benzo(b)thiophenes	ND		mg/kg	3.00	0.940
C4-Benzo(b)thiophenes	ND		mg/kg	3.00	0.940
Biphenyl	ND		mg/kg	3.00	0.927
2,6-Dimethylnaphthalene	ND		mg/kg	3.00	0.713
Dibenzofuran	ND		mg/kg	3.00	0.945
Acenaphthylene	ND		mg/kg	3.00	0.572
Acenaphthene	ND		mg/kg	3.00	0.529
2,3,5-Trimethylnaphthalene	ND		mg/kg	3.00	0.491
Fluorene	ND		mg/kg	3.00	0.800
C1-Fluorenes	ND		mg/kg	3.00	0.800
C2-Fluorenes	ND		mg/kg	3.00	0.800
C3-Fluorenes	ND		mg/kg	3.00	0.800
Dibenzothiophene	ND		mg/kg	3.00	0.827
4-Methyldibenzothiophene(4MDT)	ND		mg/kg	3.00	0.827

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 11:14
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01 Batch: WG1740061-1					
2/3-Methyldibenzothiophene(2MDT)	ND		mg/kg	3.00	0.827
1-Methyldibenzothiophene(1MDT)	ND		mg/kg	3.00	0.827
C1-Dibenzothiophenes BS	ND		mg/kg	3.00	0.827
C2-Dibenzothiophenes	ND		mg/kg	3.00	0.827
C3-Dibenzothiophenes	ND		mg/kg	3.00	0.827
C4-Dibenzothiophenes	ND		mg/kg	3.00	0.827
Phenanthrene	ND		mg/kg	3.00	0.994
3-Methylphenanthrene (3MP)	ND		mg/kg	3.00	0.994
2-Methylphenanthrene (2MP)	ND		mg/kg	3.00	0.994
2-Methylanthracene (2MA)	ND		mg/kg	3.00	0.994
9/4-Methylphenanthrene (9MP)	ND		mg/kg	3.00	0.994
1-Methylphenanthrene (1MP)	ND		mg/kg	3.00	0.994
C1-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C2-Phenanthrenes/Anthr BS	ND		mg/kg	3.00	0.994
C3-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C4-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
Retene	ND		mg/kg	3.00	0.736
Anthracene	ND		mg/kg	3.00	0.618
Carbazole	ND		mg/kg	3.00	0.981
Fluoranthene	ND		mg/kg	3.00	0.953
Benzo(b)fluorene	ND		mg/kg	3.00	0.869
7H-Benzo(c)fluorene	ND		mg/kg	3.00	0.869
2-Methylpyrene ¹	ND		mg/kg	3.00	0.789
4-Methylpyrene ¹	ND		mg/kg	3.00	0.789
1-Methylpyrene ¹	ND		mg/kg	3.00	0.789
Pyrene	ND		mg/kg	3.00	0.789
C1-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C2-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C3-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 11:14
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01 Batch: WG1740061-1					
C4-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
Naphthobenzothiophenes	ND		mg/kg	3.00	0.839
C1-Naphthobenzothiophenes	ND		mg/kg	3.00	0.839
C2-Naphthobenzothiophenes	ND		mg/kg	3.00	0.839
C3-Naphthobenzothiophenes	ND		mg/kg	3.00	0.839
C4-Naphthobenzothiophenes	ND		mg/kg	3.00	0.839
Benz(a)anthracene	ND		mg/kg	3.00	0.612
Chrysene/Triphenylene	ND		mg/kg	3.00	0.606
C1-Chrysenes	ND		mg/kg	3.00	0.606
C2-Chrysenes BS	ND		mg/kg	3.00	0.606
C3-Chrysenes	ND		mg/kg	3.00	0.606
C4-Chrysenes	ND		mg/kg	3.00	0.606
Benzo(b)fluoranthene	ND		mg/kg	3.00	0.780
Benzo(j)+(k)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(a)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(e)pyrene	ND		mg/kg	3.00	0.619
Benzo(a)pyrene	ND		mg/kg	3.00	0.856
Perylene	ND		mg/kg	3.00	0.579
Indeno(1,2,3-cd)pyrene	ND		mg/kg	3.00	0.814
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	3.00	0.810
Benzo(g,h,i)perylene	ND		mg/kg	3.00	0.797
Hopane (T19)	ND		mg/kg	3.00	0.854
C23 Tricyclic Terpane (T4)	ND		mg/kg	3.00	0.854
C24 Tricyclic Terpane (T5)	ND		mg/kg	3.00	0.854
C25 Tricyclic Terpane (T6)	ND		mg/kg	3.00	0.854
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	3.00	0.854
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	3.00	0.854
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	3.00	0.854
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	3.00	0.854

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 11:14
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01 Batch: WG1740061-1					
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	3.00	0.854
18a-22,29,30-Trisnorhopane-TS (T11)	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22S	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22R	ND		mg/kg	3.00	0.854
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	3.00	0.854
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	3.00	0.854
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	3.00	0.854
30-Norhopane (T15)	ND		mg/kg	3.00	0.854
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	3.00	0.854
17a(H)-Diahopane (X)	ND		mg/kg	3.00	0.854
30-Normoretane (T17)	ND		mg/kg	3.00	0.854
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	3.00	0.854
Moretane (T20)	ND		mg/kg	3.00	0.854
30-Homohopane-22S (T21)	ND		mg/kg	3.00	0.854
30-Homohopane-22R (T22)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22S (T26)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22R (T27)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22S (T30)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22R (T31)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22S (T32)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22R (T33)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22S (T34)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22R (T35)	ND		mg/kg	3.00	0.854
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	3.00	0.666
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	3.00	0.666
13b,17a-20S-Methylcholestane (S8)	ND		mg/kg	3.00	0.666
17a(H)20SC27/C29dia	ND		mg/kg	3.00	0.666

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 02/04/23 11:14
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 02/02/23 08:28

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01 Batch: WG1740061-1					
17a(H)20RC27/C29dia	ND		mg/kg	3.00	0.666
Unknown Sterane (S18)	ND		mg/kg	3.00	0.666
13a,17b-20S-Ethylcholestane (S19)	ND		mg/kg	3.00	0.666
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	3.00	0.666
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	3.00	0.666
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	3.00	0.666
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	3.00	0.666
C26,20R+C27,20S TAS	ND		mg/kg	3.00	0.666
C28,20S TAS	ND		mg/kg	3.00	0.666
C27,20R TAS	ND		mg/kg	3.00	0.666
C28,20R TAS	ND		mg/kg	3.00	0.666

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	74		50-130
Phenanthrene-d10	88		50-130
Benzo(a)pyrene-d12	100		50-130
5B(H)Cholane-Surr	86		50-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01 Batch: WG1740061-2 WG1740061-3								
Naphthalene	90		89		50-130	1		30
2-Methylnaphthalene	86		82		50-130	5		30
Acenaphthylene	86		86		50-130	0		30
Acenaphthene	92		90		50-130	2		30
Fluorene	88		88		50-130	0		30
Phenanthrene	90		90		50-130	0		30
Anthracene	95		95		50-130	0		30
Fluoranthene	95		97		50-130	2		30
Pyrene	98		97		50-130	1		30
Benz(a)anthracene	92		93		50-130	1		30
Chrysene/Triphenylene	96		92		50-130	4		30
Benzo(b)fluoranthene	104		105		50-130	1		30
Benzo(j)+(k)fluoranthene	110		108		50-130	2		30
Benzo(a)pyrene	101		100		50-130	1		30
Indeno(1,2,3-cd)pyrene	106		105		50-130	1		30
Dibenz(a,h)+(a,c)anthracene	104		105		50-130	1		30
Benzo(g,h,i)perylene	108		105		50-130	3		30

Lab Control Sample Analysis Batch Quality Control

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01 Batch: WG1740061-2 WG1740061-3								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
Naphthalene-d8	86		86		50-130
Phenanthrene-d10	92		91		50-130
Benzo(a)pyrene-d12	104		102		50-130
5B(H)Cholane-Surr	85		80		50-130

PETROLEUM HYDROCARBONS

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

SAMPLE RESULTS

Lab ID: L2303552-01
 Client ID: TANK-281-LNAPL-20230118
 Sample Location: PHILADELPHIA, PA

Date Collected: 01/18/23 09:40
 Date Received: 01/20/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Oil
 Analytical Method: 1,8015D(M)
 Analytical Date: 01/22/25 00:00
 Analyst: AC
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: N/A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Whole Oil Analysis - Mansfield Lab						
Refer To Case Narrative/Chromatograms			-	-	1.00	1

Project Name: PESRM**Lab Number:** L2303552**Project Number:** 200.00135.014.04**Report Date:** 02/17/23**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(*)
L2303552-01A	Vial unpreserved 20ml hard-cap	A	NA		4.8	Y	Absent		A2-WHOLEOIL(365),A2-ALKPAH/BIOMARKER(365)
L2303552-01B	Glass 60mL/2oz unpreserved	A	NA		4.8	Y	Absent		A2-ALKPAH/BIOMARKER(365)
L2303552-01C	Glass 60mL/2oz unpreserved	A	NA		4.8	Y	Absent		A2-ALKPAH/BIOMARKER(365)
L2303552-01D	Amber 1000ml unpreserved	A	NA		4.8	Y	Absent		A2-ALKPAH/BIOMARKER(365)
L2303552-01E	Amber 1000ml unpreserved	A	NA		4.8	Y	Absent		A2-ALKPAH/BIOMARKER(365)

Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

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: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PESRM
Project Number: 200.00135.014.04

Lab Number: L2303552
Report Date: 02/17/23

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA
 WESTBORO, MA
 TEL: 508-898-9220
 FAX: 508-898-9193

MANSFIELD, MA
 TEL: 508-822-9300
 FAX: 508-822-3288

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 1/21/23

ALPHA Job #: L2303552

Client Information

Client: Ransom Consulting LLC

Address: 2127 Hamilton Ave.
Hamilton, NJ 08619

Phone: 609-584-0090 x 341

Fax:

Email: William.Schmidt@ransomem.com

These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM

Project Location: Phila., PA

Project #: 200.00135.014.04

Project Manager: William Schmidt

ALPHA Quote #: 21278

Report Information - Data Deliverables

FAX EMAIL

ADEX Add'l Deliverables

Billing Information

Same as Client info PO # 200,00135, 014

Regulatory Requirements/Report Limits

State /Fed Program: _____ Criteria: _____

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due: _____ Time: _____

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

Whole Oil (8015D(M))
Alkylates PAHs (8270E-SIM)
Organic Lead-SIM
PIANO
Saturated VOC-SIM
8260P
MS 100 Hydrocarbons
MS-15 Pdfs and Library Search

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	ANALYSIS	SAMPLE HANDLING	Sample Specific Comments
		Date	Time					
03552-01	Tank 281 - LNAPL	1/18/23	9:40	CO	CO	X H H H H H		run Whole Oil hold Rest

Container Type: G G G G G G

Preservative: - - - - -

Relinquished By: WILLIAM SCHMIDT Date/Time: 1/20/23 12:20

Received By: JAVIER BARR Date/Time: 1/20/23 13:20

1/20/23 13:40

1/20/23 2105

1/20/23 2315

1/20/23 19:30

1/20/23 2125

1/20/23 2315

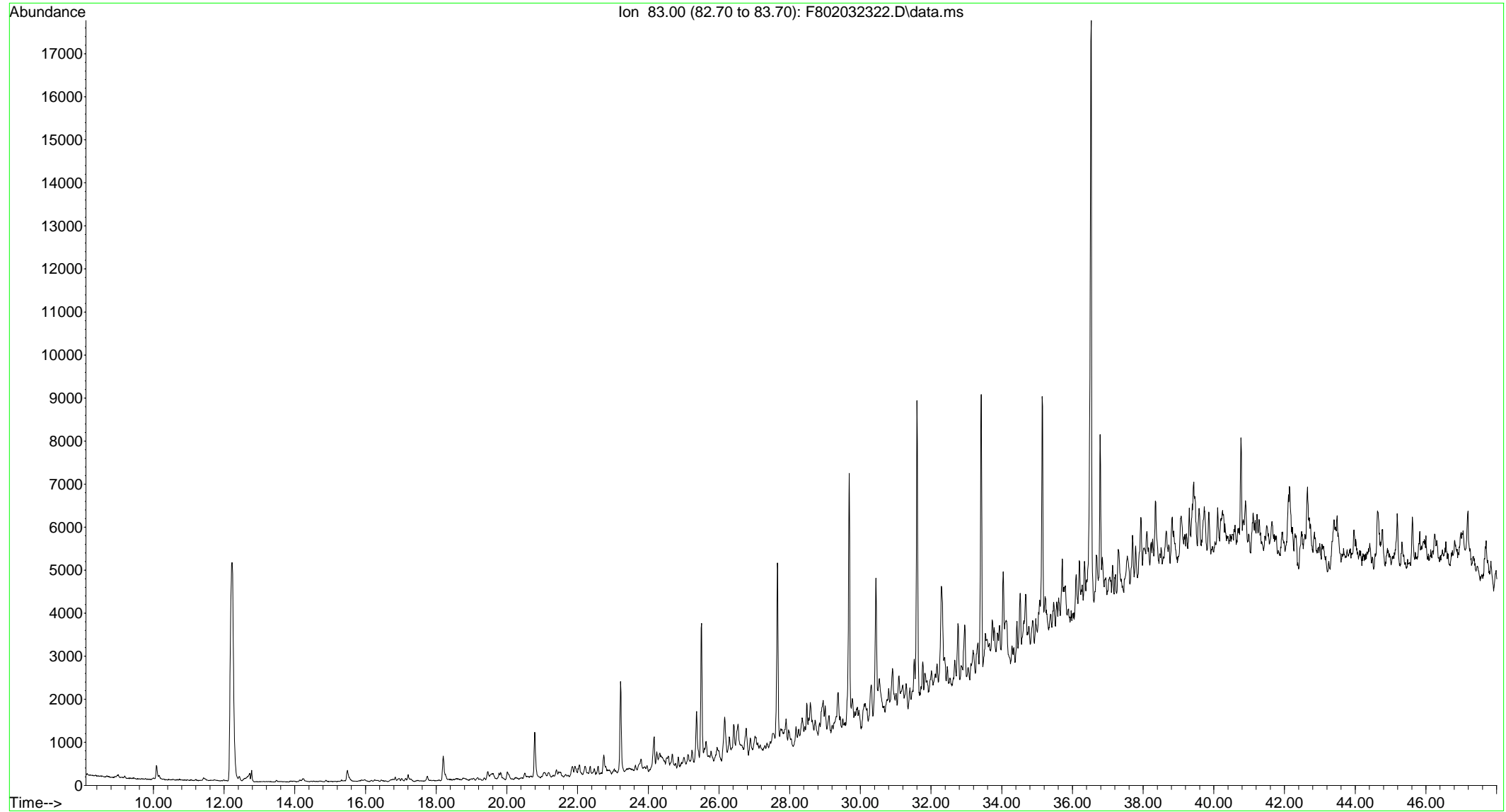
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

WILLIAM SCHMIDT 1/21/23 0800

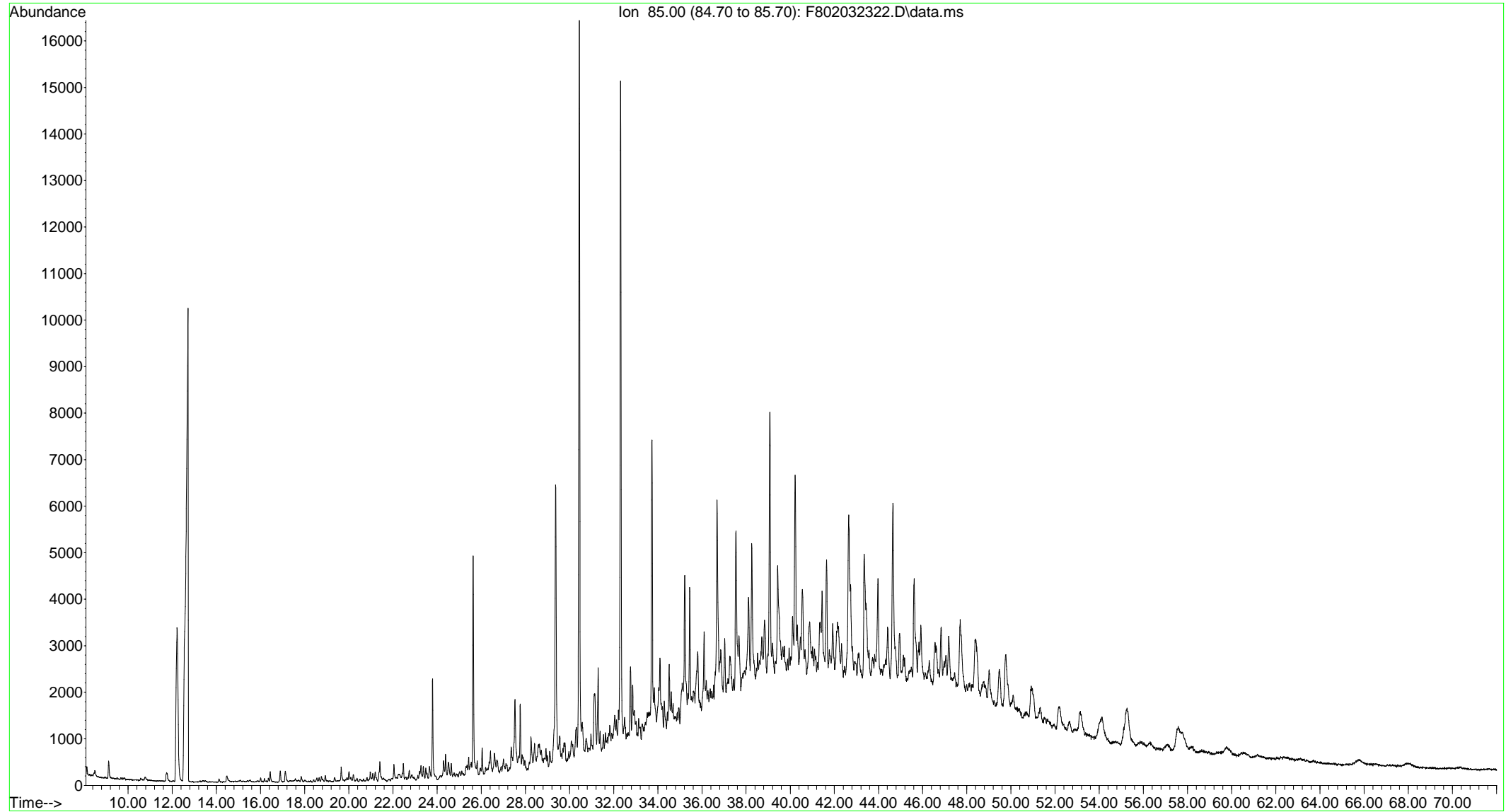
R. MANDIG 1/21/23 0800

Ion Chromatograms

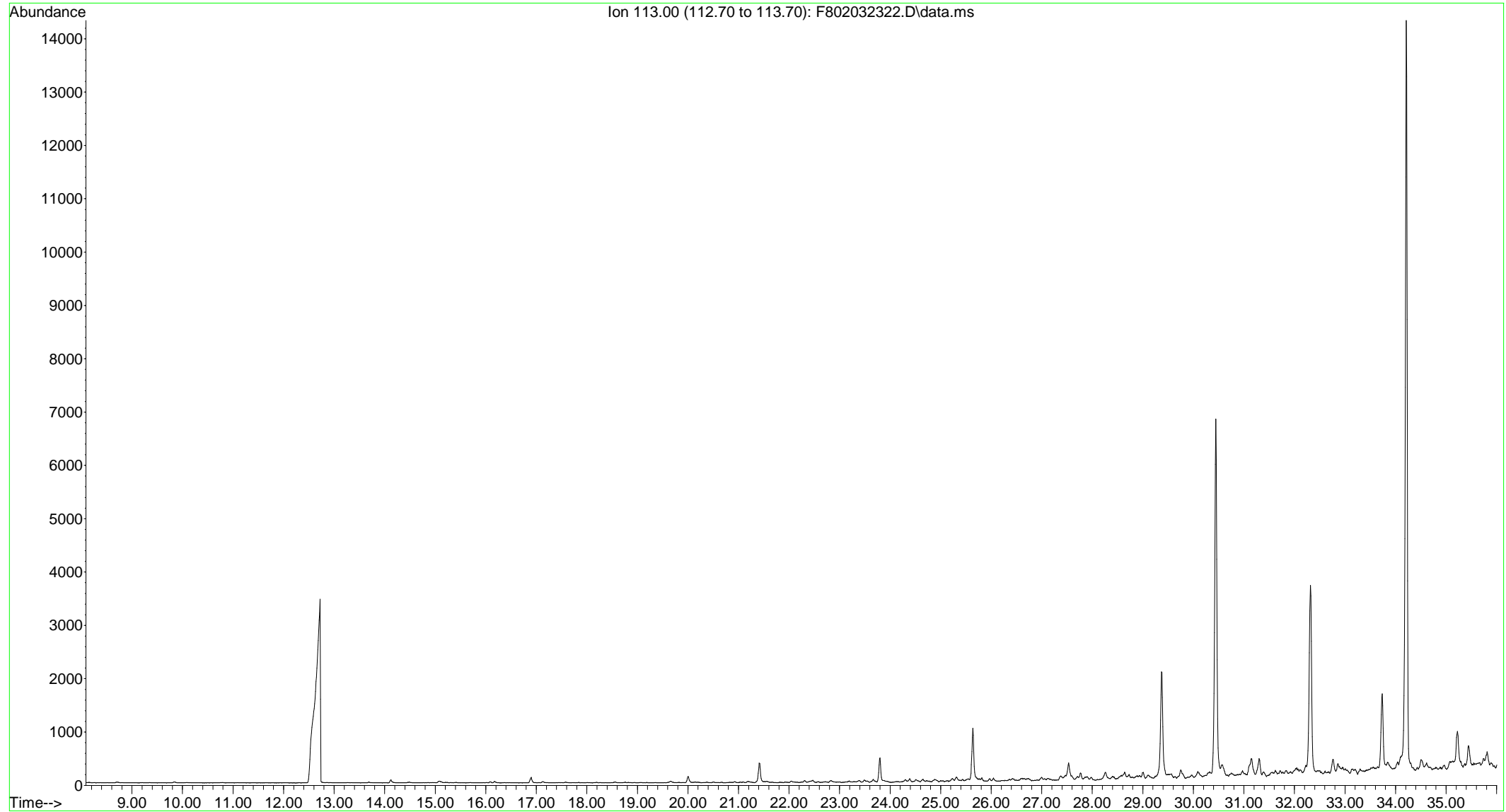
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



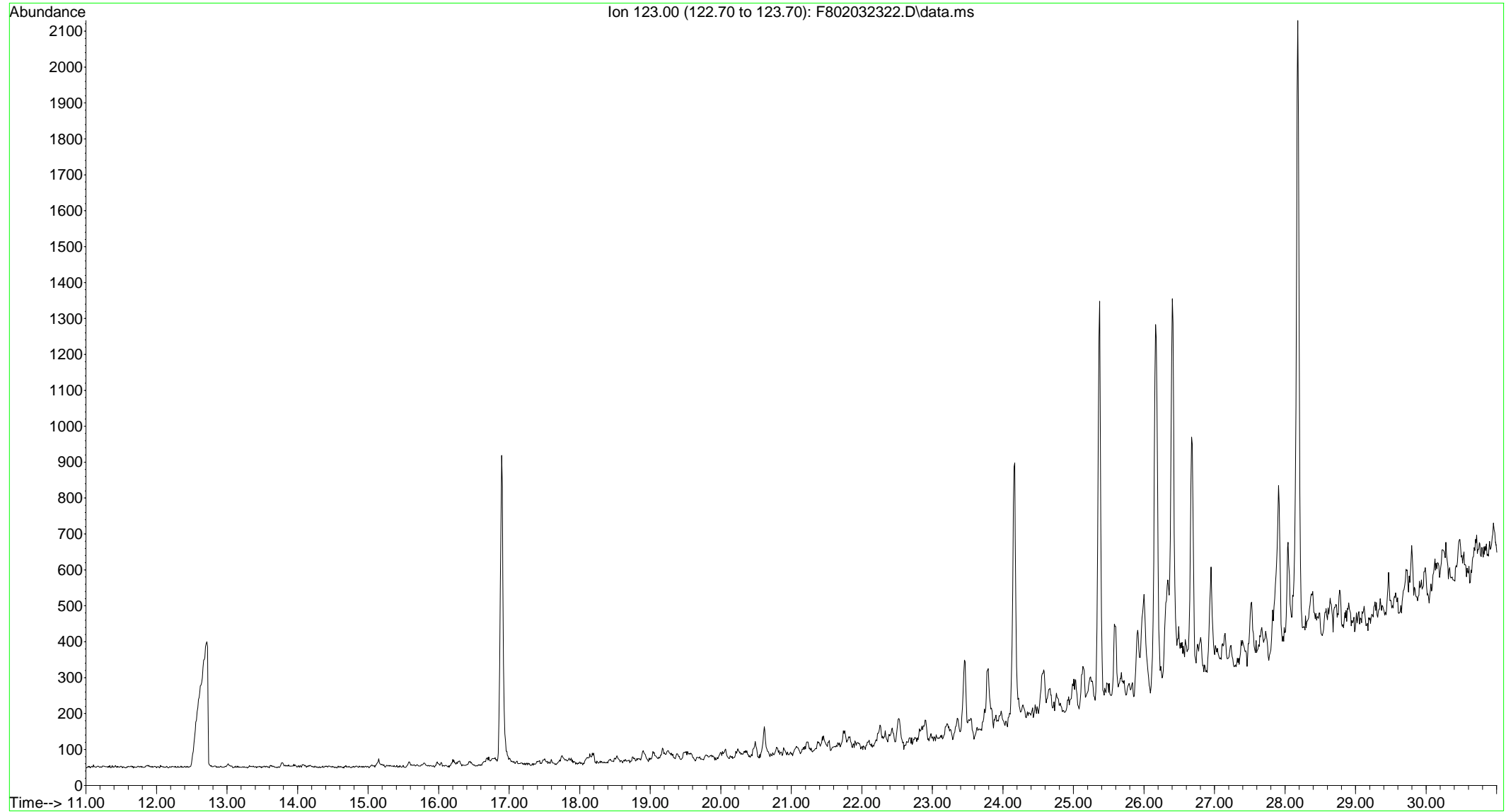
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



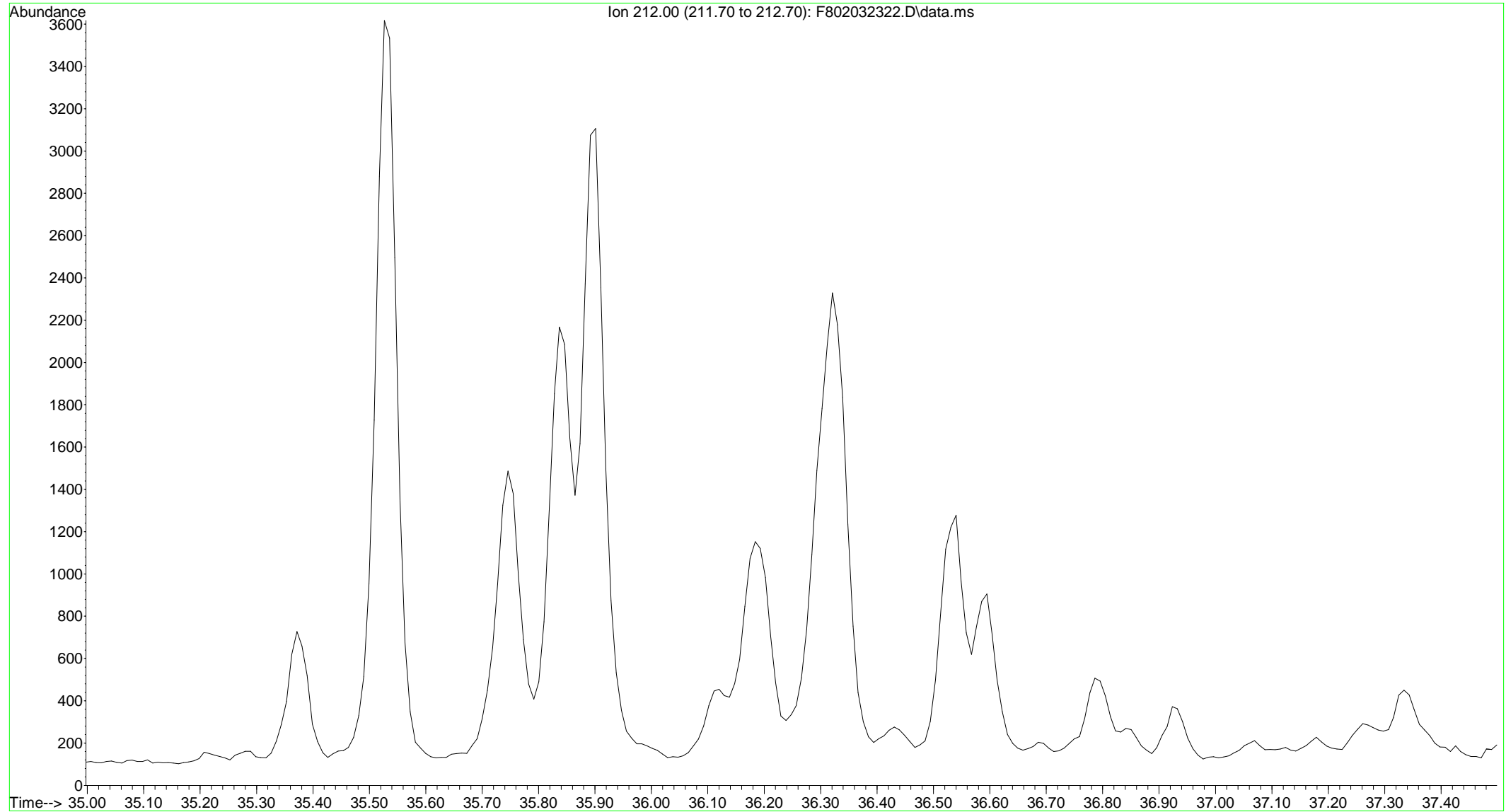
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



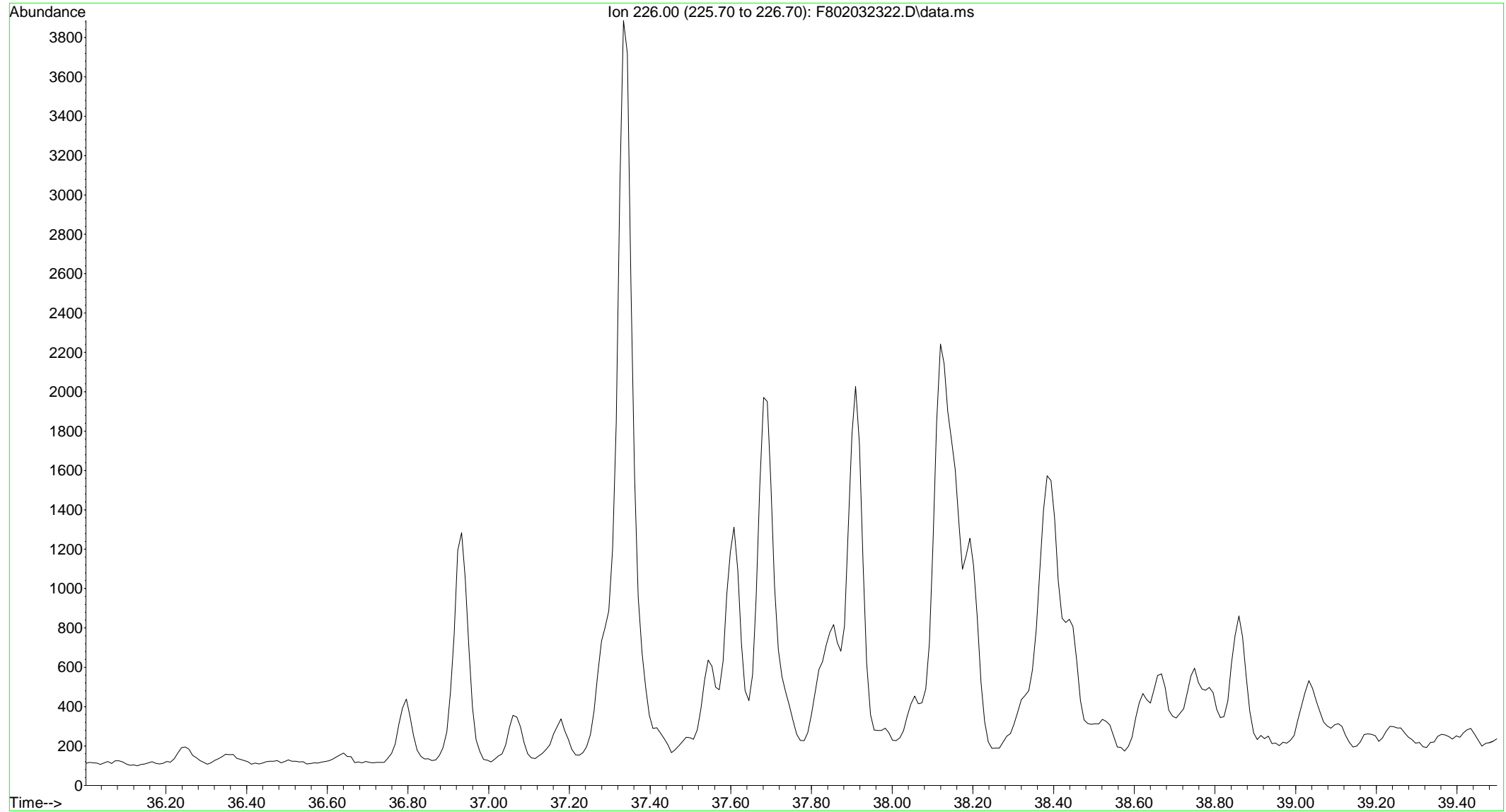
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



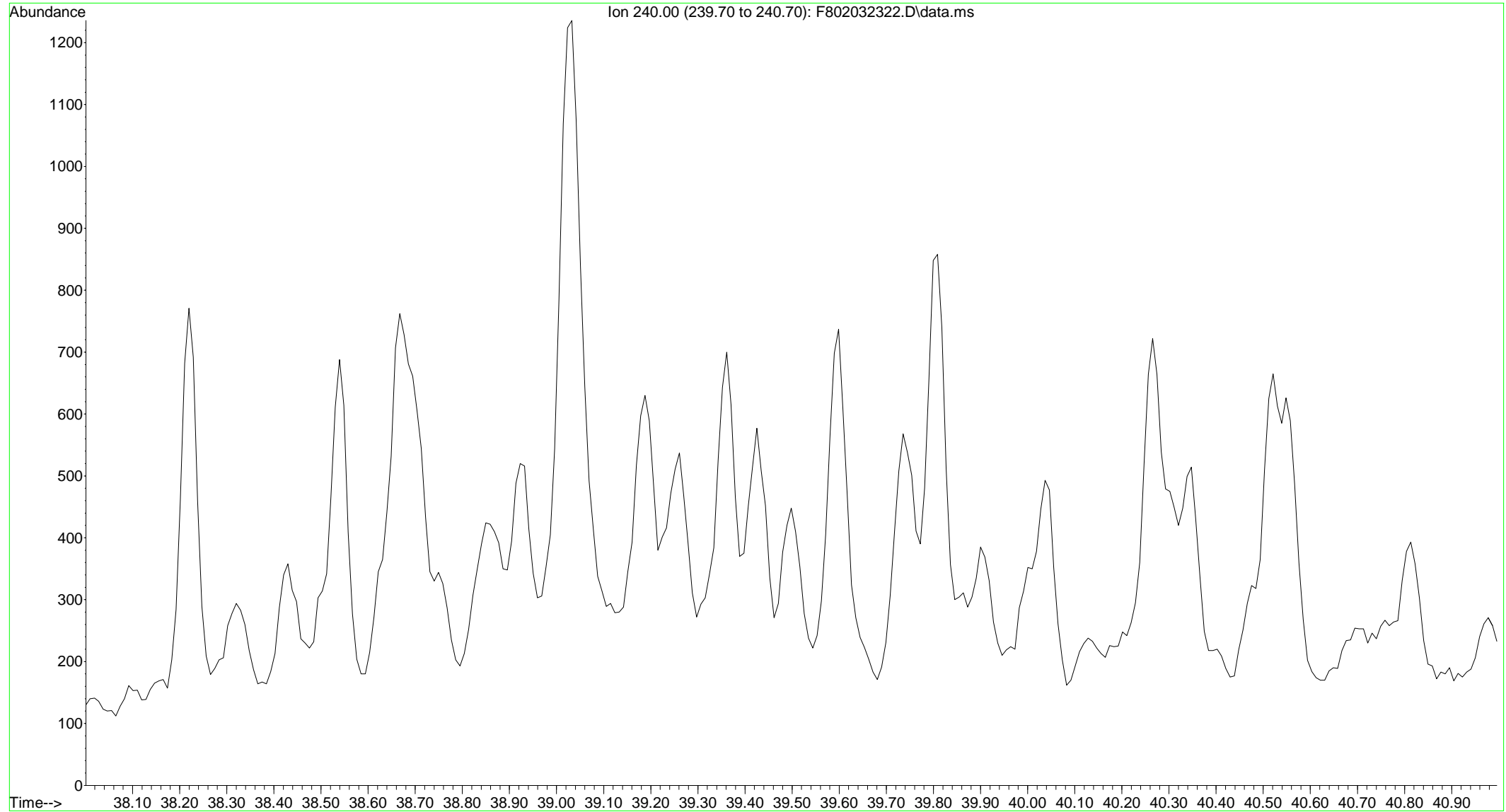
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



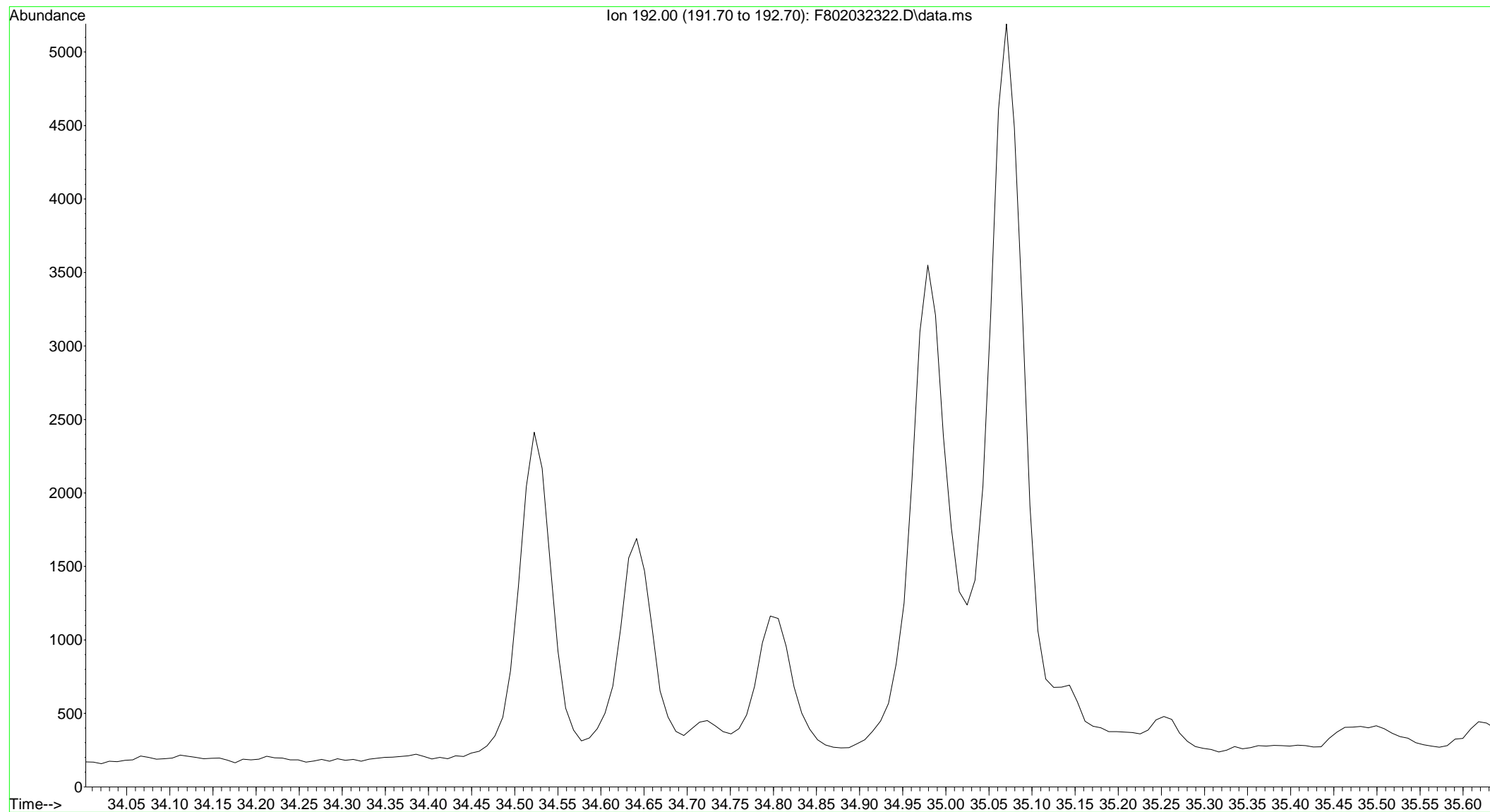
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



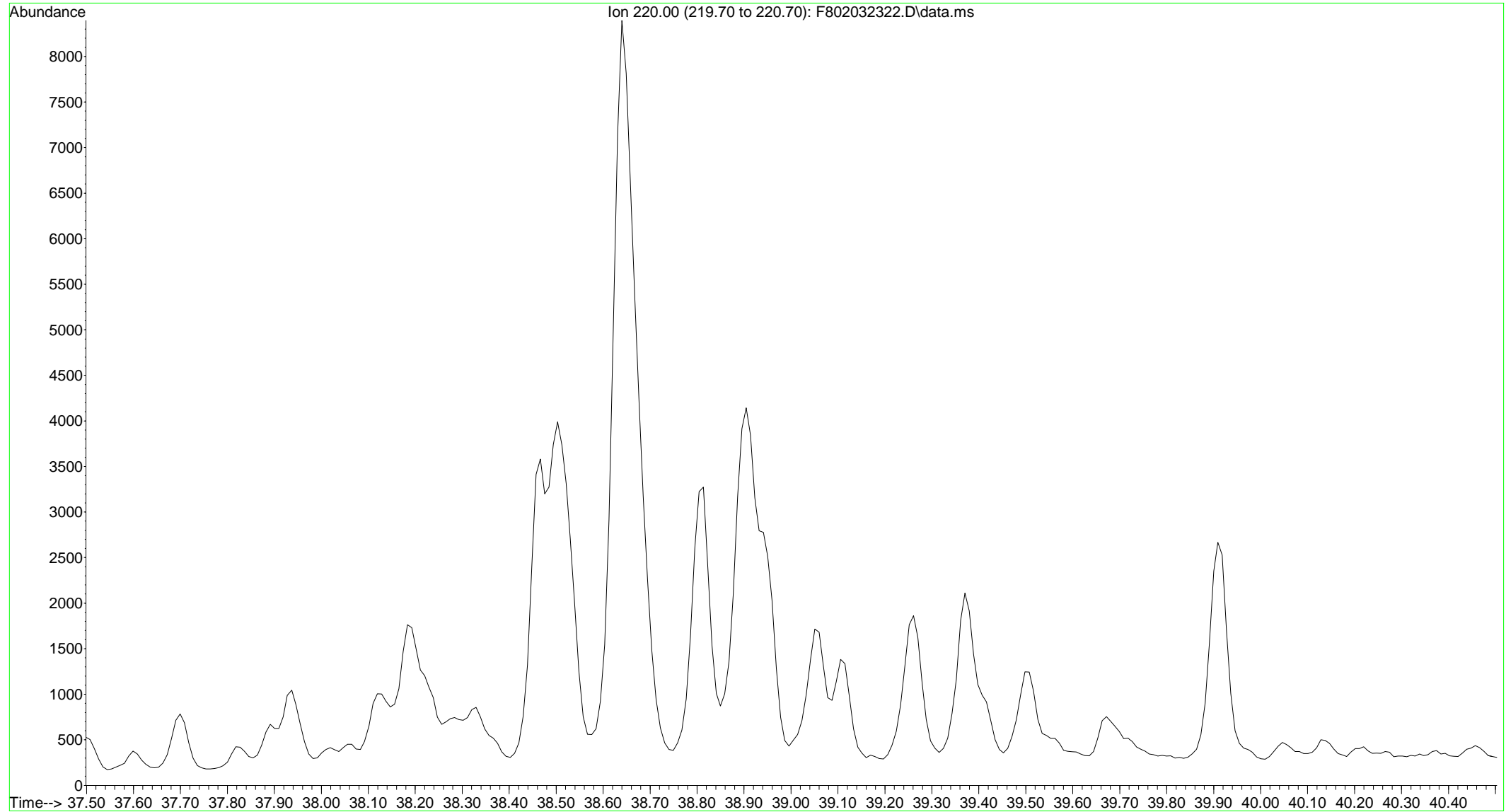
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



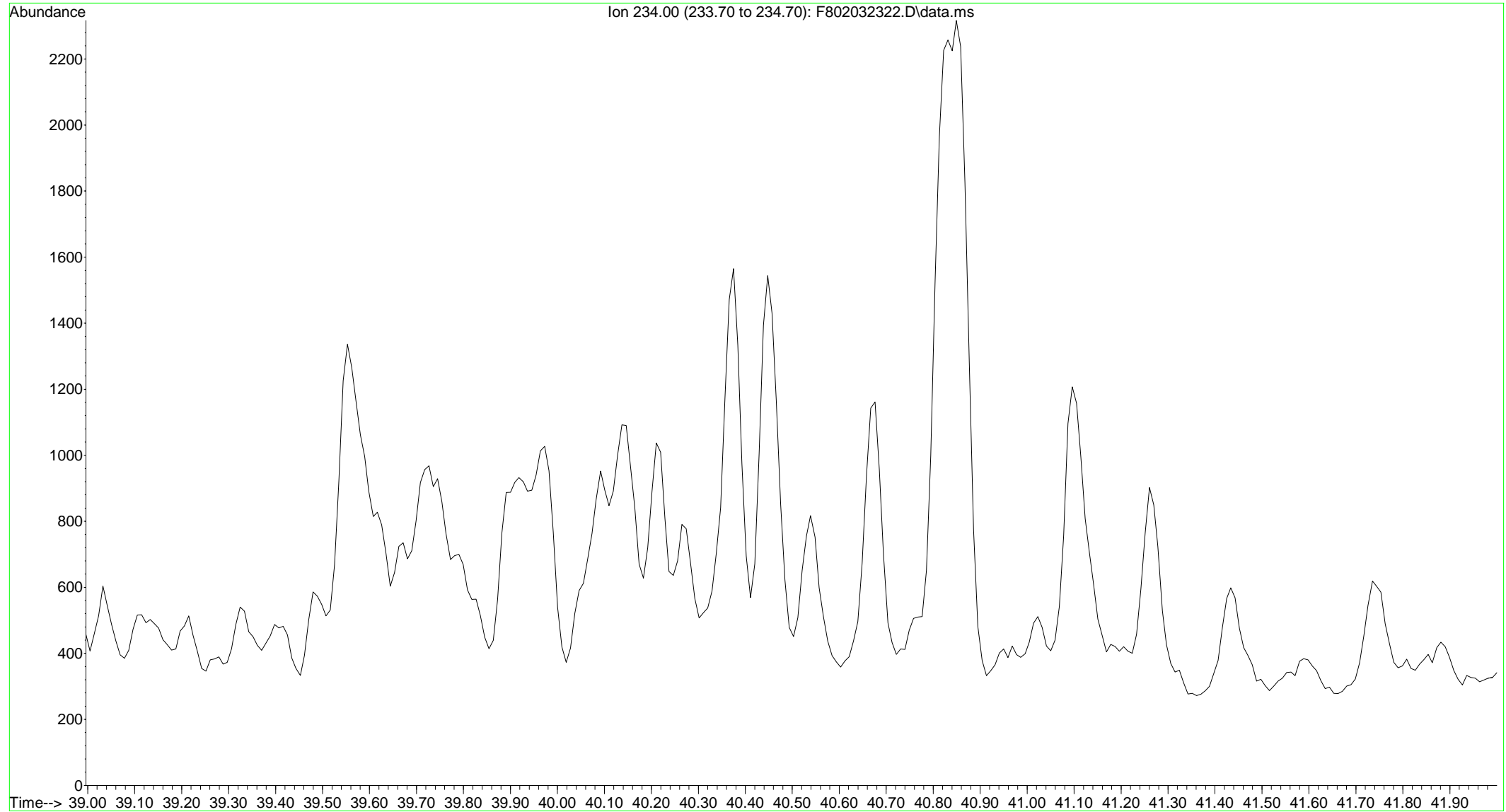
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



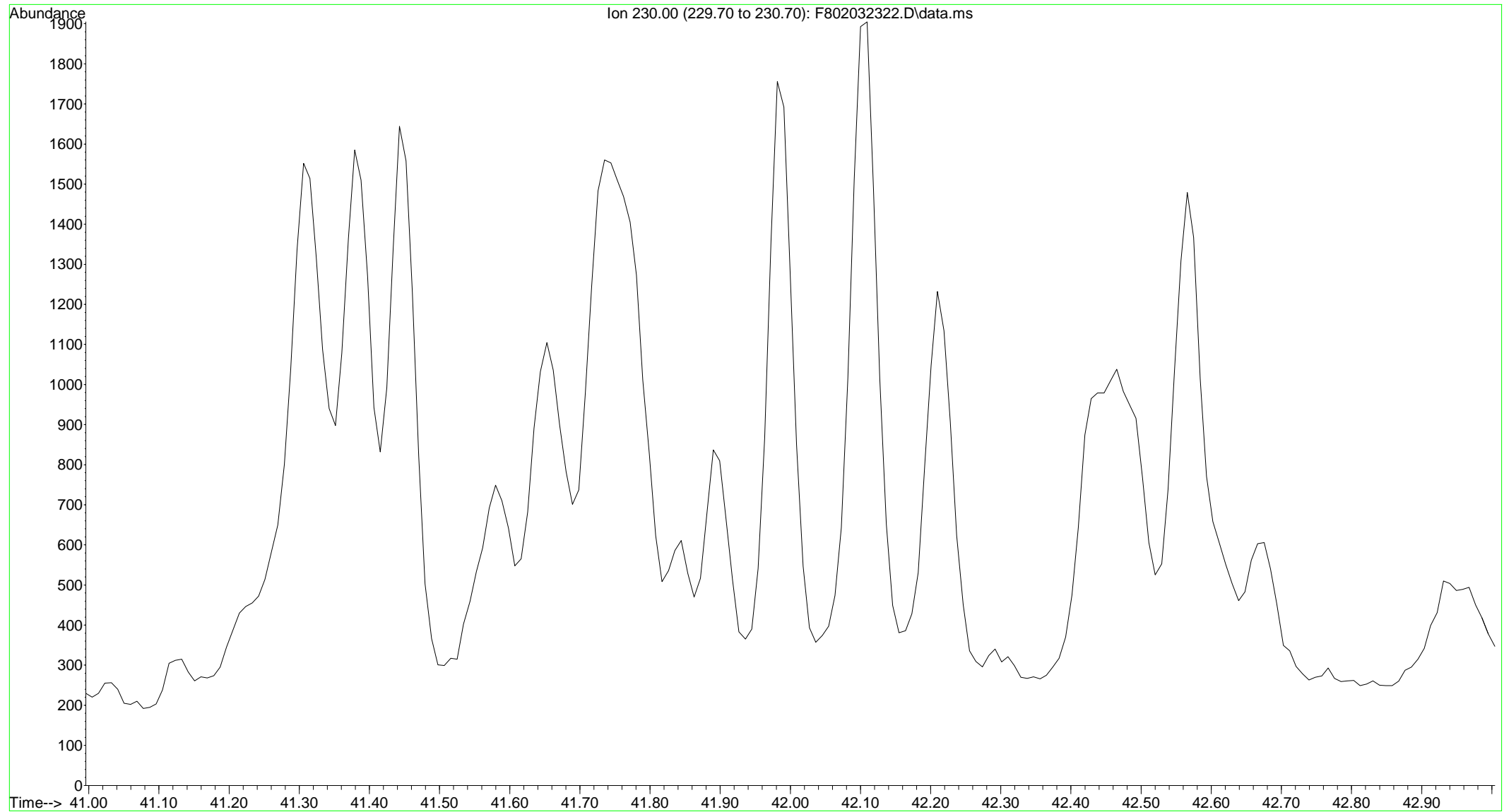
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



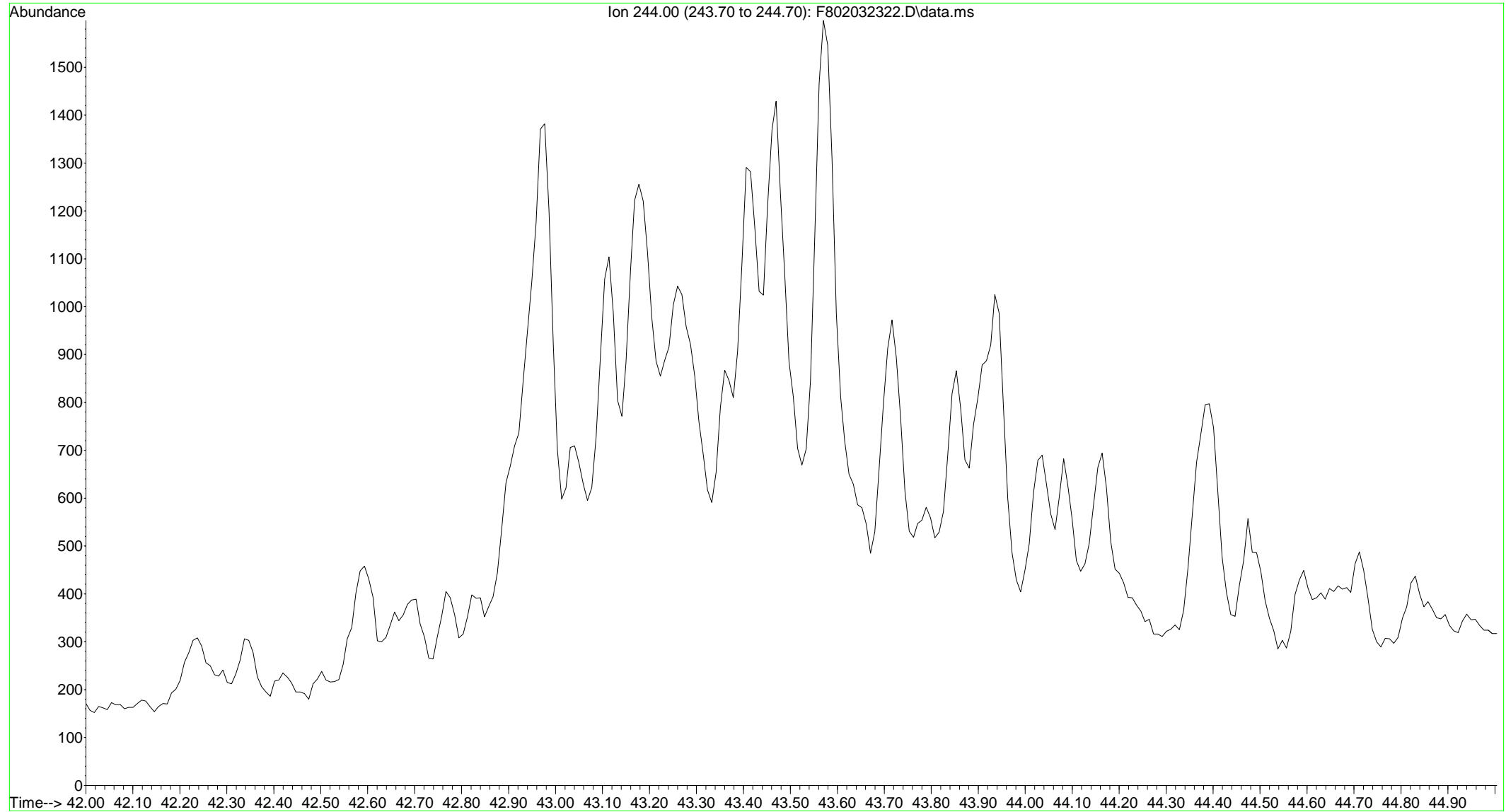
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



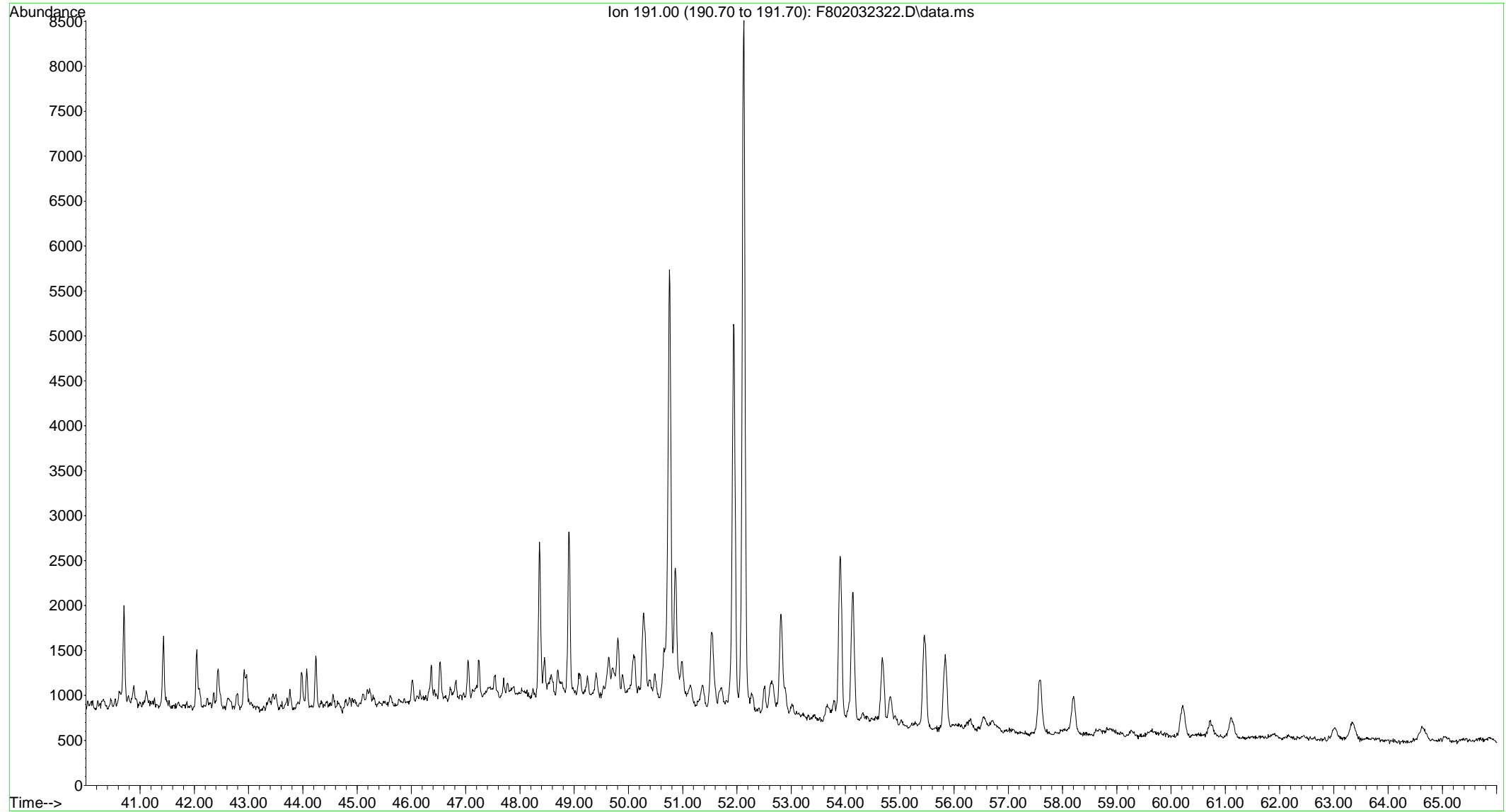
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



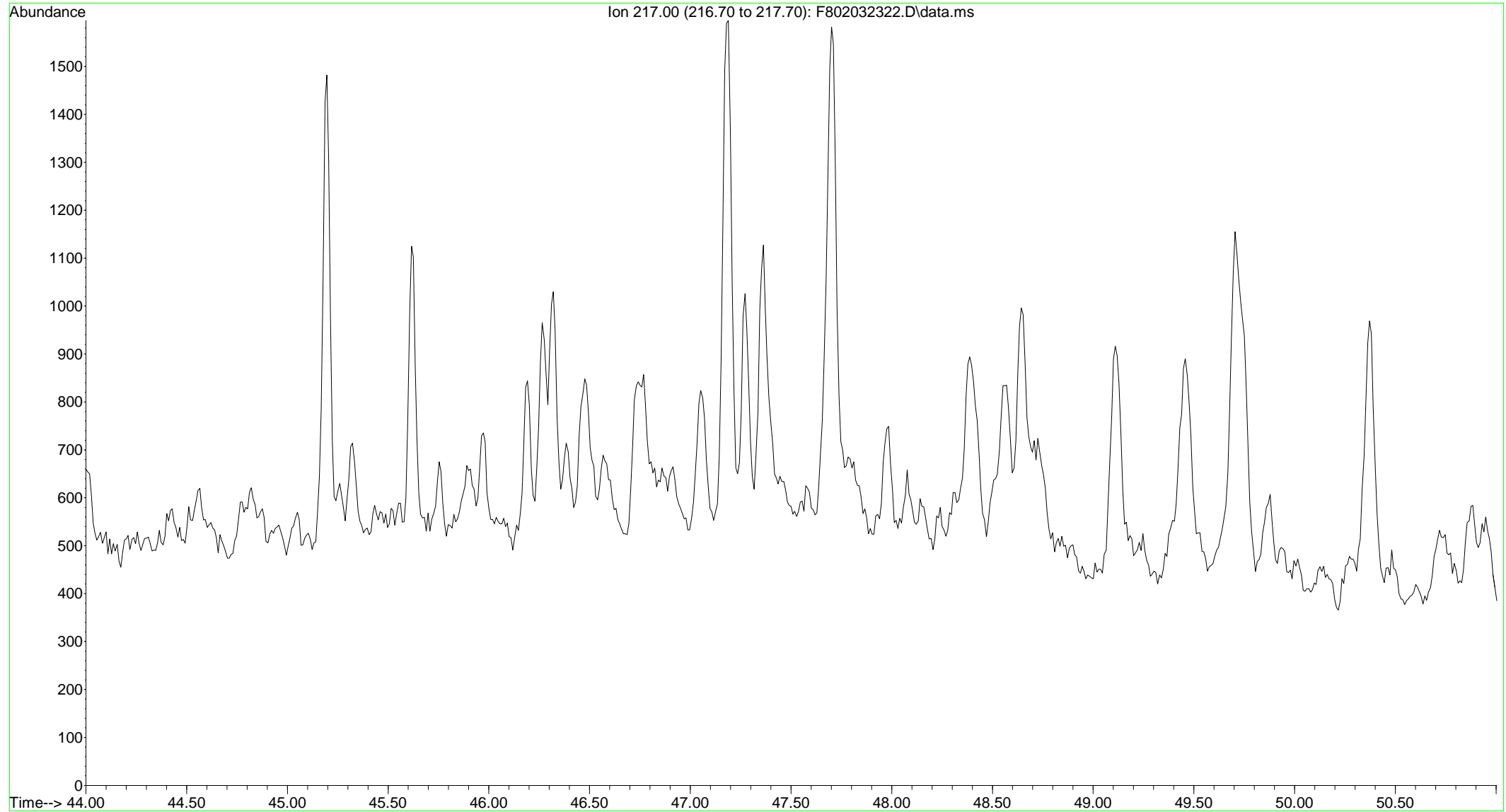
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



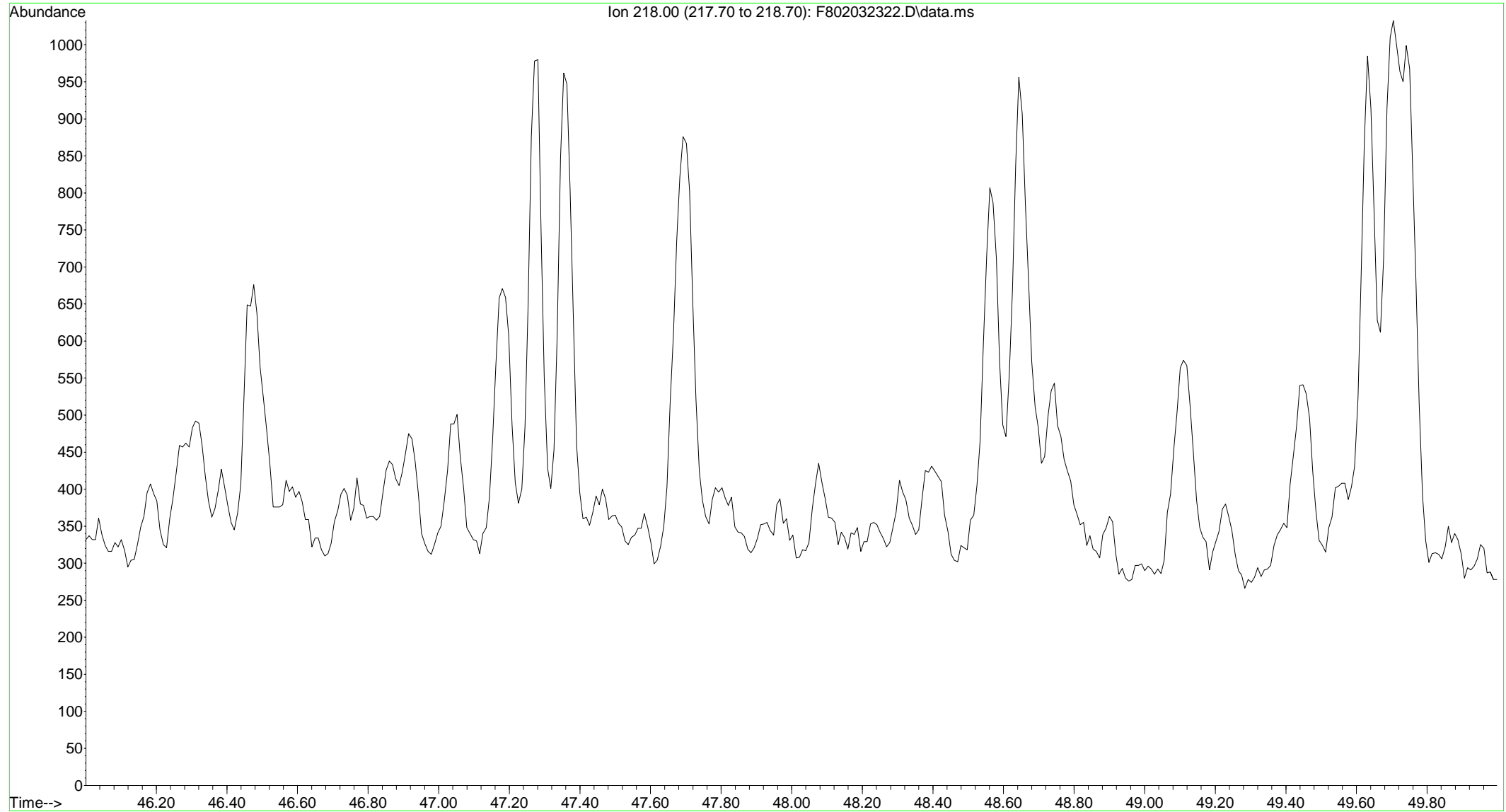
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



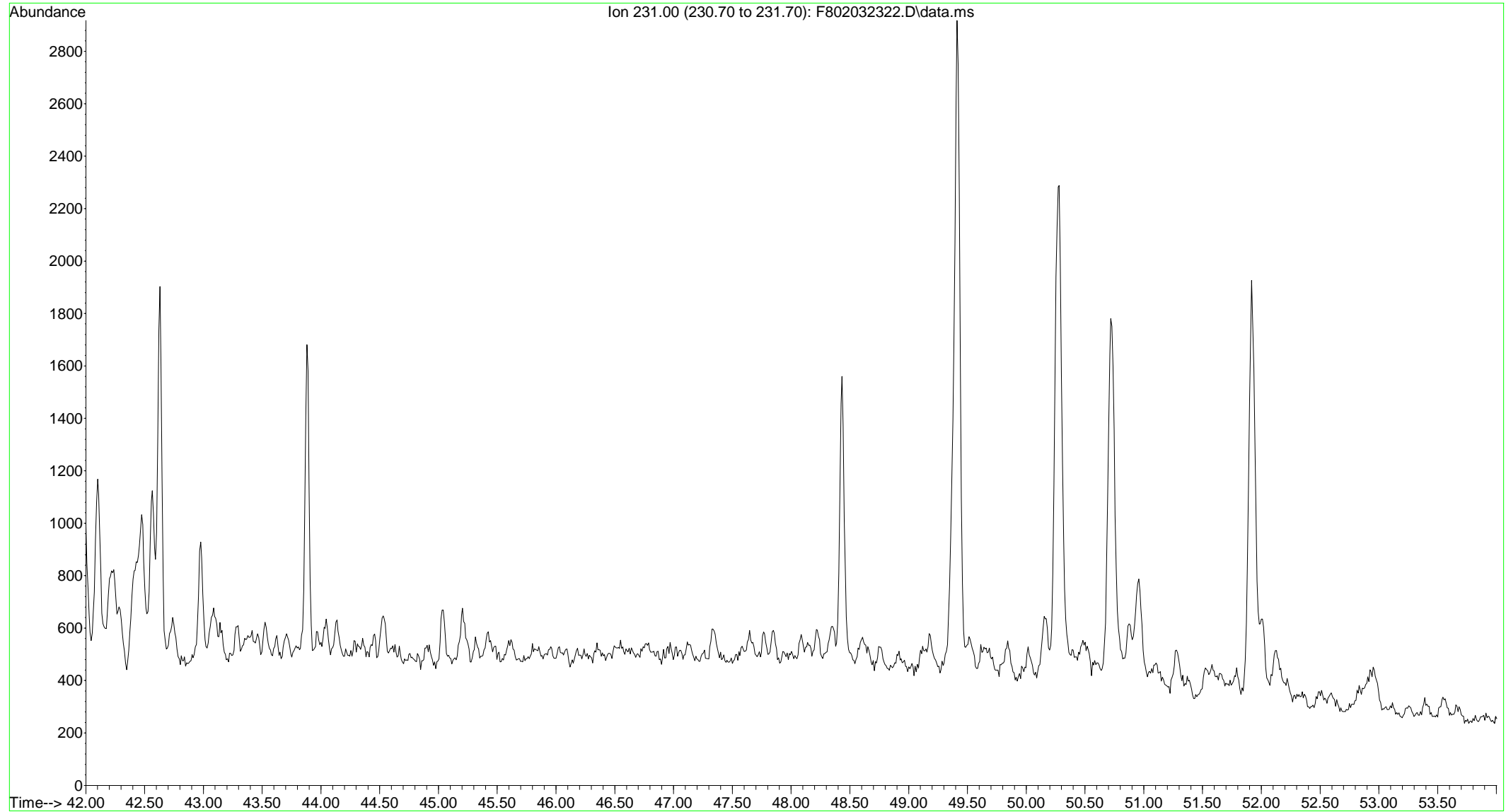
File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22



File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22

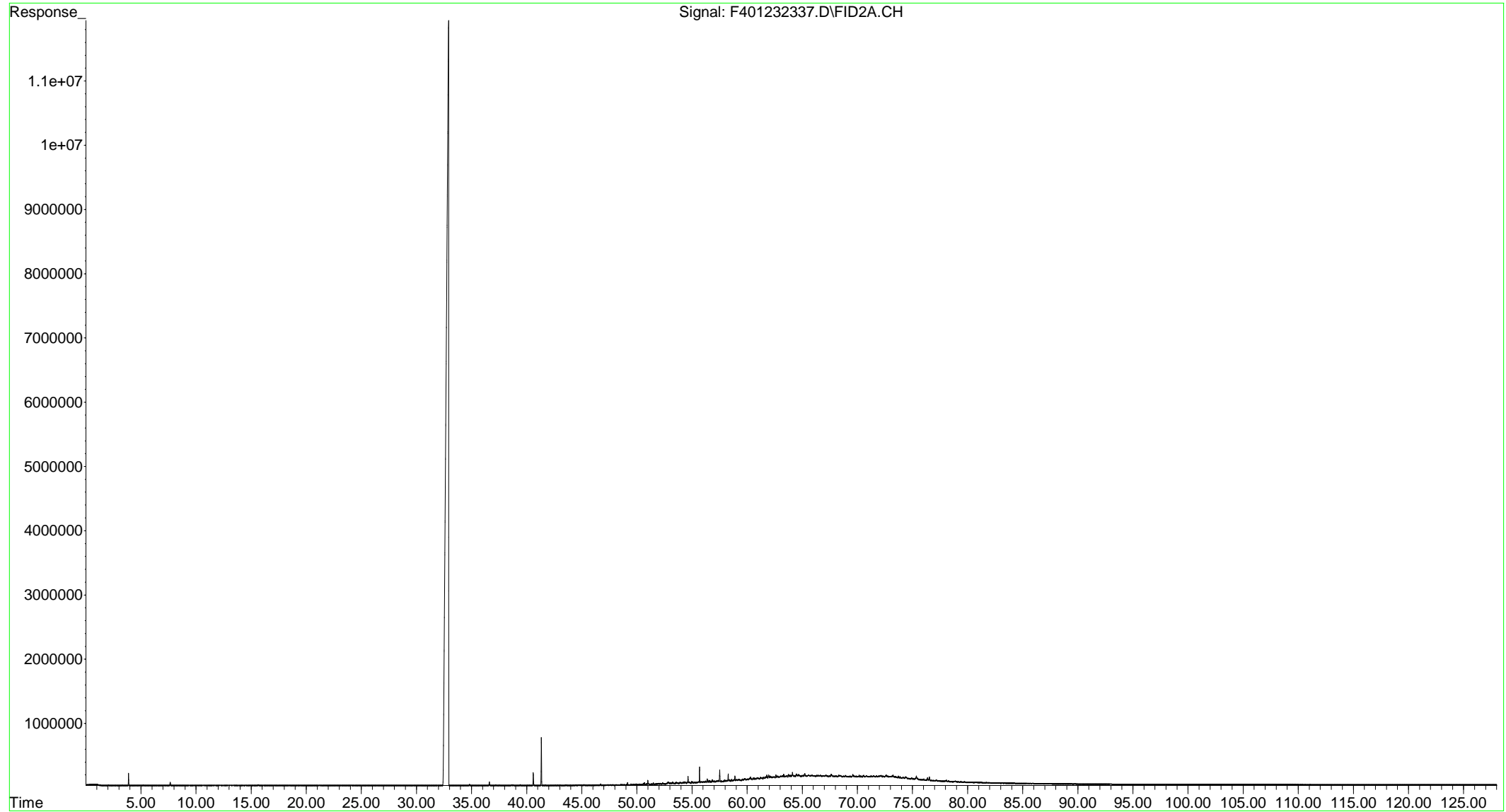


File :O:\Forensics\Data\PAH8\2023\FEB23\feb03\F802032322.D
Operator : PAH8:CNC
Acquired : 4 Feb 2023 3:27 pm using AcqMethod FRNC8A.M
Instrument : PAH8
Sample Name: L2303552-01,32,,
Misc Info : WG1741025,WG1740061,ICAL19648
Vial Number: 22

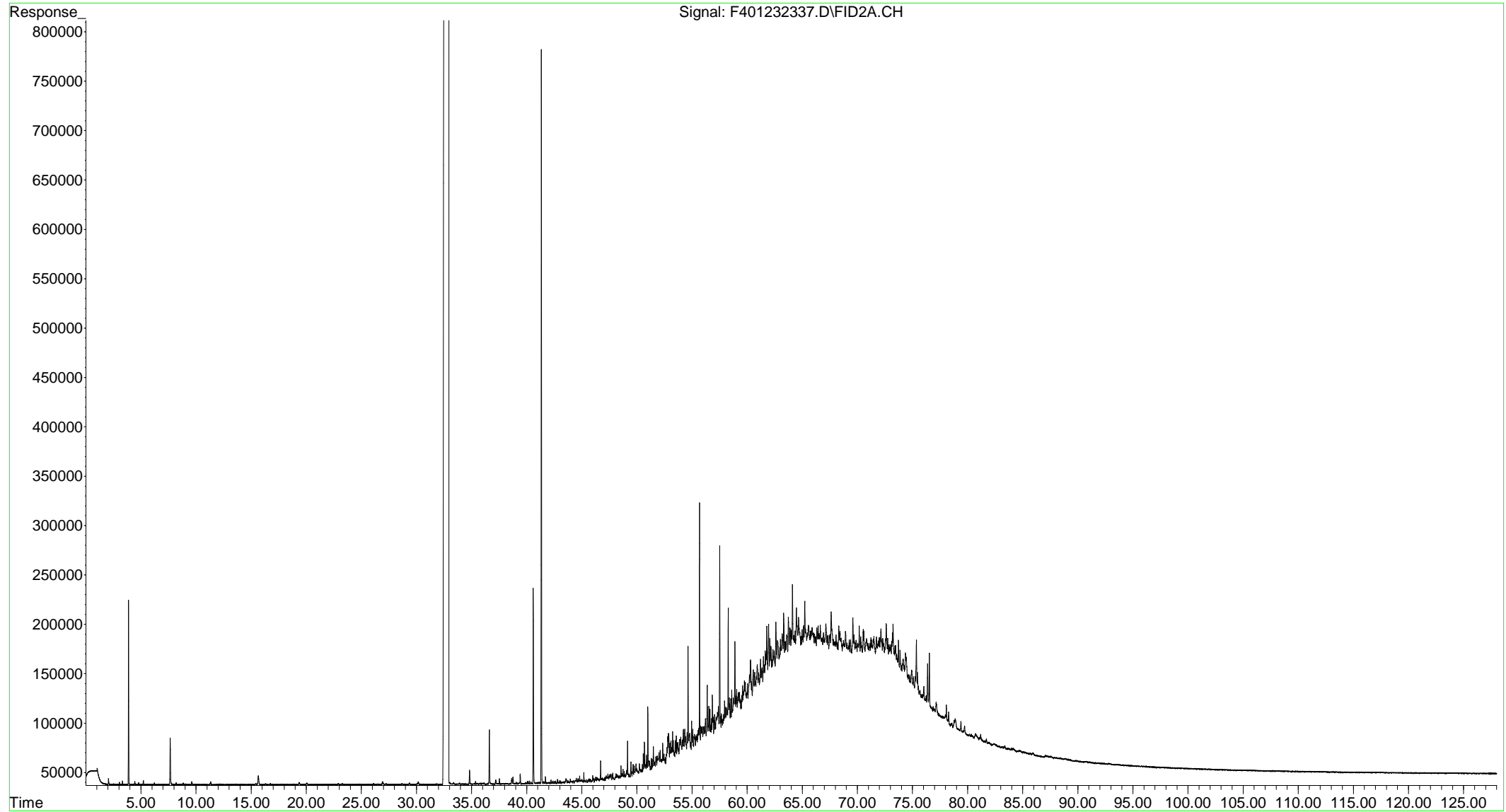


Whole Oil by GC-FID Chromatograms

File :O:\Forensics\Data\PAH4\2023\JAN23\JAN23.SEC\F401232337.D
Operator : AC
Acquired : 26 Jan 2023 4:17 am using AcqMethod WHOIL4A.M
Instrument : PAH 4
Sample Name: L12303552-01
Misc Info :
Vial Number: 69

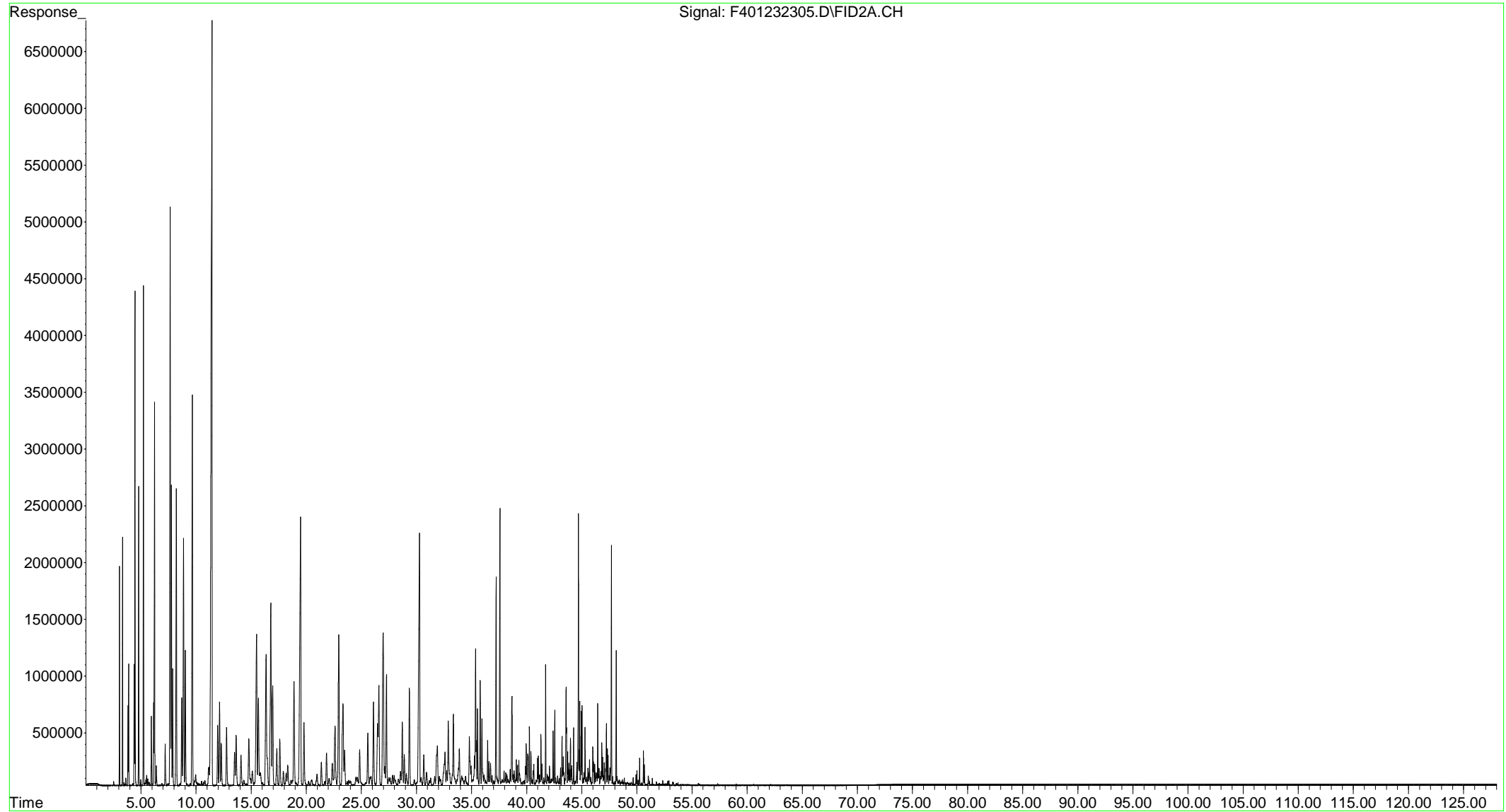


File :O:\Forensics\Data\PAH4\2023\JAN23\JAN23.SEC\F401232337.D
Operator : AC
Acquired : 26 Jan 2023 4:17 am using AcqMethod WHOIL4A.M
Instrument : PAH 4
Sample Name: L12303552-01
Misc Info :
Vial Number: 69

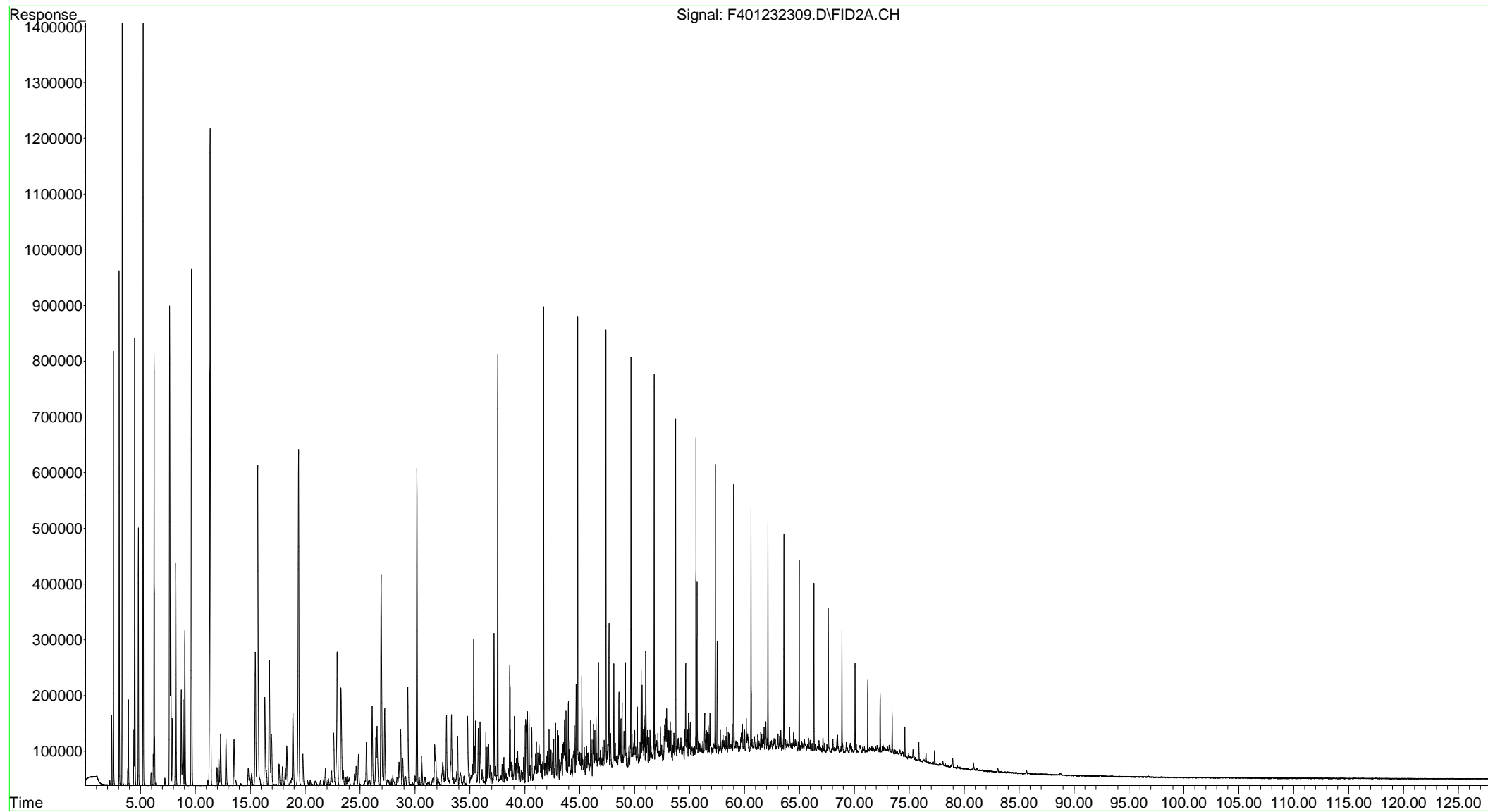


Whole Oil Reference Oils

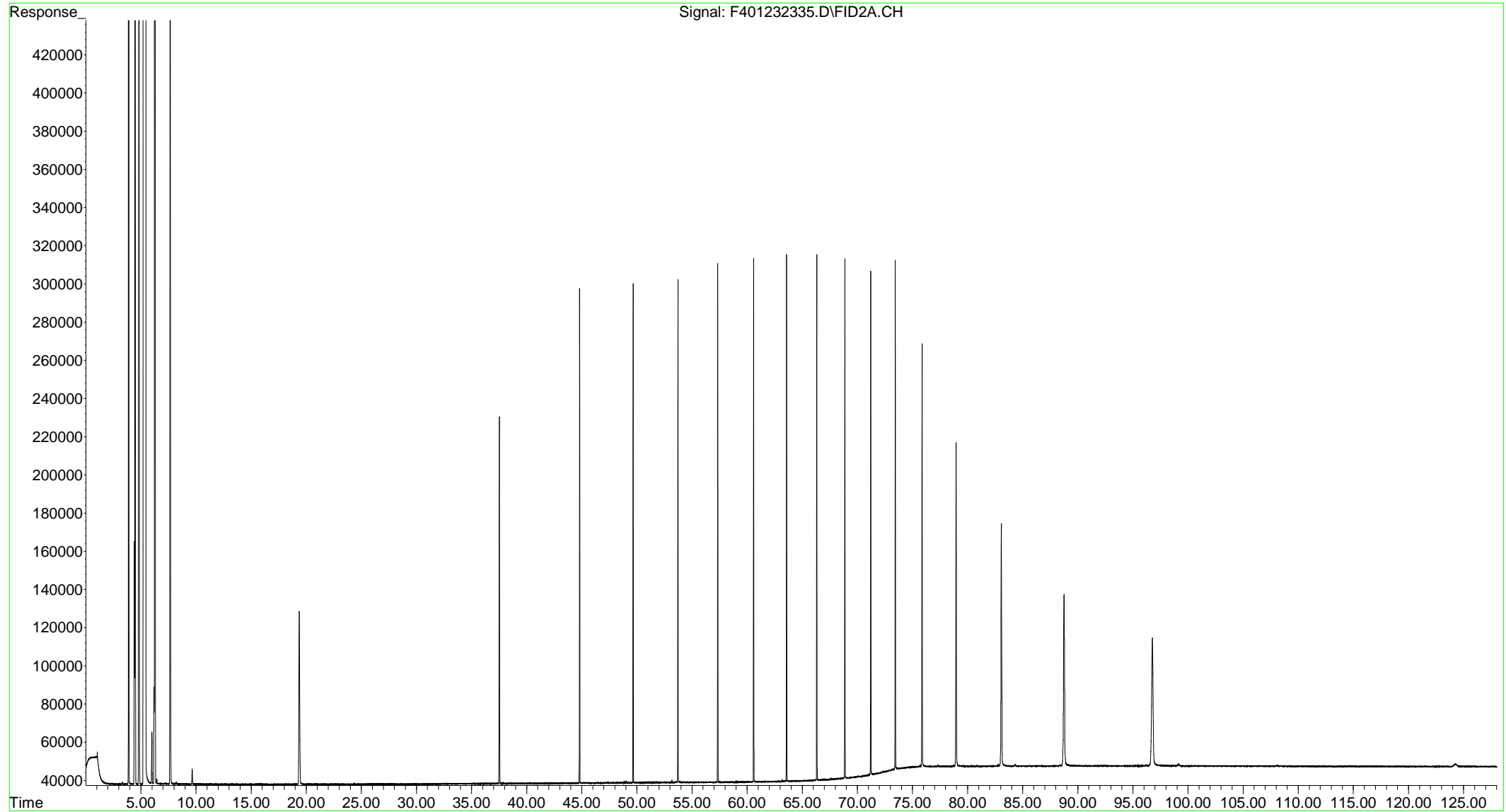
File :O:\Forensics\Data\PAH4\2023\JAN23\JAN23.SEC\F401232305.D
Operator : AC
Acquired : 23 Jan 2023 7:53 pm using AcqMethod WHOIL4A.M
Instrument : PAH 4
Sample Name: 1d7412292201
Misc Info : F012605B
Vial Number: 53



File :O:\Forensics\Data\PAH4\2023\JAN23\JAN23.SEC\F401232309.D
Operator : AC
Acquired : 24 Jan 2023 12:56 am using AcqMethod WHOIL4A.M
Instrument : PAH 4
Sample Name: ans412292201
Misc Info : S210303G
Vial Number: 55



File :O:\Forensics\Data\PAH4\2023\JAN23\JAN23.SEC\F401232335.D
Operator : AC
Acquired : 26 Jan 2023 1:43 am using AcqMethod WHOIL4A.M
Instrument : PAH 4
Sample Name: CCV
Misc Info :
Vial Number: 68



ChemQuants™
ENVIRONMENTAL FORENSICS

Client: William Schmidt

ATTN: Ransom Consulting, LLC

Project#: 0272

Project name: Former Philadelphia Energy
Solutions and Marketing Ref.

Laboratory#: L2303552



March 27, 2023

William Schmidt
Ransom Consulting, LLC
2127 Hamilton Avenue
Hamilton, NJ 08619

CQ Project# 0272
Project Name: Former Philadelphia Energy Solutions and Marketing Ref.

Introduction

I am the principal at ChemQuants, LLC, an environmental forensics firm in Santa Barbara, California. I received bachelor's degrees in Analytical Chemistry and Environmental Science from Florida International University and a Master's in Analytical Chemistry from Florida International University. My professional experience has focused on oil spill environmental forensics. My specialties include petroleum release investigations on coastal waterways and subsurface environments at petroleum terminals and fueling stations and "big environmental data" chemometrics and data visualization. Besides being chair at scientific conferences, I have authored numerous publications and presentations to my peers.

I was asked by Ransom Consulting, LLC, to provide expert opinions regarding environmental forensics relating to one liquid-phase hydrocarbon ("LPH") sample.

I was asked to answer the following question:

- What are the chemical source characteristics of the LPHs expressed in the samples?
- Was it possible to age constrain the fugitive petroleum release(s)?
- How does the project sample fingerprint in the LPHs compare?

The client communicated the following project detail:

- Tank 281 is an AST used primarily to store heavy gas oil ("HGO").
- On September 18, 1999, approximately 84 gallons were reported released from Tank 281.
- PADEP was notified on September 19, 1999, and Incident No. 30777 was assigned by the PADEP.
- On November 24, 2001, approximately 200 gallons of gas oil was reportedly released from Tank 281
- PADEP was notified on November 24, 2001, and Incident No. 5913 was assigned by the PADEP.
- The approximate depth to the groundwater table on site is 6 to 12 feet.
- The general lithology of the site above the water table is "More Sandy than Silty."

Client ID	Lab ID	Date Collected	Date Received	Matrix	C3-C44 Whole Oil GC/FID	Alkylated PAHs & Biomarkers
TANK-281-LNAPL-20230118	L2303552-01	1/8/2023	1/20/2023	LPH	X	X



The sample was delivered to Alpha Analytical, Inc. (Mansfield, MA) and analyzed with the following analytical methods¹:

- 1) Whole Oil fingerprinting by GC/FID / EPA 8015B (Mod.)
- 2) Alkylated PAHs by GC/MS / EPA 8270D-SIM(M) (Full Scan Acquisition Included)

Investigative methodology

The forensics quality chemical data were evaluated by an experienced environmental forensics expert that employed investigation techniques typically used to understand the nature of petroleum releases in the environment.

Refinery process exposure lines of evidence were based on PAHs' a) thermodynamic stabilities. Source discriminating lines of evidence were based on the – a) boiling ranges distributions of the unresolved complex mixture "UCM" (GC/FID "hump" characteristics) and n-paraffins, b) saturate biomarker distributions - terpanes, steranes, triaromatic steranes, and monoaromatic steranes. Weathering diagnostics lines of evidence were based on distributions of compounds with different susceptibility to environmental alterations by evaporation and dissolution.

Results and Discussion

Weathering Properties

Dissolution, evaporation, and biodegradation (other modes not listed)² are dominant modes of oil weathering in spill scenarios. Evaluation of chemical parameters that effectively "reflect" chemical alterations from weathering are valuable as additional lines of forensics evidence. For instance, petroleum may become somewhat altered after a fugitive release, and those changes will need to be explained in the overall context of a defensible petroleum forensics report. Essentially, most differences between the oils in question must be presented within a logical weathering "framework" or trackable errors caused by instrumental uncertainties. A successful interpretation of petroleum weathering dynamics in a fugitive spill scenario will likely bolster the assertions made from the oil correlation study, as well as support fate and transport lines of evidence.

Weathering properties were assessed with a qualitative review of middle distillate range hydrocarbons; n-paraffins are the first to be depleted by biodegradation of the semi-volatile hydrocarbon range ("SVOC") and serve as the primary determinant for biodegradation³. On the formal basis of the Kaplan Stages in biodegradation of petroleum⁴, TANK-281-LNAPL-20230118 can be described as being severely biodegraded to the extent of stage 5, given the ~>98% removal of n-paraffins (85 m/z), ~>75% removal of alkylcyclohexanes (83 m/z), and the nearly undepleted state of the more resistant to biodegradation isoparaffins (figure 1).

¹ Douglas, G.D., Emsbo-Mattingly, S.D., Stout, S.A., Uhler, A.D., and McCarthy, K.J. (2007) Chemical fingerprinting of hydrocarbons and polychlorinated biphenyls. In: *Introduction to Environmental Forensics, 2nd Ed.*, B. Murphy and R. Morrison, Eds., Academic Press, New York, pp. 317-459.

² Wang, Z., and M. Fingas. "Oil and petroleum product fingerprinting analysis by gas chromatographic techniques." *Chromatographic Science Series* 93 (2006): 1027.

³ Wenger, Lloyd M., Cara L. Davis, and Gary H. Isaksen. "Multiple controls on petroleum biodegradation and impact on oil quality." *SPE Reservoir Evaluation & Engineering* 5.05 (2002): 375-383.

⁴ Kaplan, Isaac R., et al. "Forensic environmental geochemistry: differentiation of fuel-types, their sources and release time." *Organic Geochemistry* 27.5-6 (1997): 289-317.



Refining Properties

Properties - The shape and boiling range of the UCM in the whole oil chromatogram revealed the dominance of a petroleum type with hydrocarbons spanning the residual petroleum range to the residual range (~C18~C32+). In addition, aromatic richness was evident in the prominence of alkyl naphthalene and alkyl phenanthrene isomers relative to the residual range UCM (figure 1). The distribution of the n-paraffin targeted ion trace (85 m/z) revealed the complete removal of n-paraffins. The distribution of the alkylcyclohexanes targeted ion trace (83 m/z) revealed an ~>75% depletion of the light to middle distillate range petroleum biomarkers (figure 1). The PAH bar graph in figure 1 revealed enrichments of higher alkylated naphthalenes ("N3" to "N4"), higher alkylated fluorenes ("F2" to "F3"), alkylated phenanthrenes/anthracenes distributions dominated by "P2" and "P3", significant enrichment of sulfur heterocyclic aromatic hydrocarbons ("SPAHS") - dibenzothiophenes ("DBTs") and naphthobenzothiophenes ("NBTs"), and significant enrichments of residual range alkylated chrysenes ("BC"). The petroleum biomarker bar graph in figure 1 revealed the presence of residual range biomarkers, e.g., terpanes (191 m/z), steranes (217 and 218 m/z), and triaromatic steranes (231 m/z).

Refinery Exposure Discrimination and Characterization - The following chemical attributes were reviewed to help classify whether the petroleum was refined. Depending on the refinery objective, HGO feedstocks may be exposed to atmospheric distillation, thermal cracking (visbreaking), or vacuum distillation. Compared to the original crude oil feedstock, the effect of refinery processes has been shown to alter the distribution of specific biomarkers that are less thermodynamically stable⁵. Furthermore, second-order effects from catalytic cracking refinery processes are reflected in the distribution of 5 methyl phenanthrene isomers. Relative abundances of the less thermodynamically stable 9/4-methyl phenanthrene and 1-methyl phenanthrene isomers (relative to 3-methyl phenanthrene and 2-methyl phenanthrene) are decreased under the stresses of refinery processes. Conversely, 2-methyl anthracene (2-MA) is typically produced during vacuum distillation and cracking and is absent in most crude oils⁶. The rightward skew of C1 phenanthrene/anthracene isomers in combination with 2-MA enrichment and the specific relationships of C29 sterane isomers (as $\beta\beta/(\beta\beta+\alpha\alpha) = 0.49$) confirms that the petroleum is likely an HGO and not a Heavy Fuel Oil ("HFO") since a fraction of an HFO is typically derived from a more thermodynamically aggressive catalytic cracking process⁷ (figure 1).

Age Estimation - The stage 5 level of biodegradation per the Kaplan Stage, in combination with the moderate level 4-5 weathering potential regime at the site (moderate level estimated from – 6-12 ft to G.W. & More Sandy than Silty lithology), indicates that the HGO in TANK-281-LNAPL-20230118 may have experienced a residence time in the environment of ~18 to 28 years.

⁵ Peters, Kenneth E., Clifford C. Walters, and J. Michael Moldowan. *The biomarker guide*. Vol. 1. Cambridge University Press, 2005.

⁶ Radke, Matthias, et al. "Aromatic components of coal: relation of distribution pattern to rank." *Geochimica et Cosmochimica Acta* 46.10 (1982): 1831-1848

⁷ Speight, James G. *The chemistry and technology of petroleum*. CRC press, 2014.



Conclusions

The preponderance of the evidence shows that the LPH in TANK-281-LNAPL-20230118 was likely an HGO petroleum product. A 'time of release' estimation was derived for TANK-281-LNAPL-20230118 to be approximately 18 to 28 years.

Upon receipt of additional information, I reserve the right to modify and supplement my opinions outlined in this report.

You may email questions or concerns to markcejas@chemquants.com regarding chemistry data or interpretation.

Respectfully submitted,

Mark Jonathan Cejas
Principal

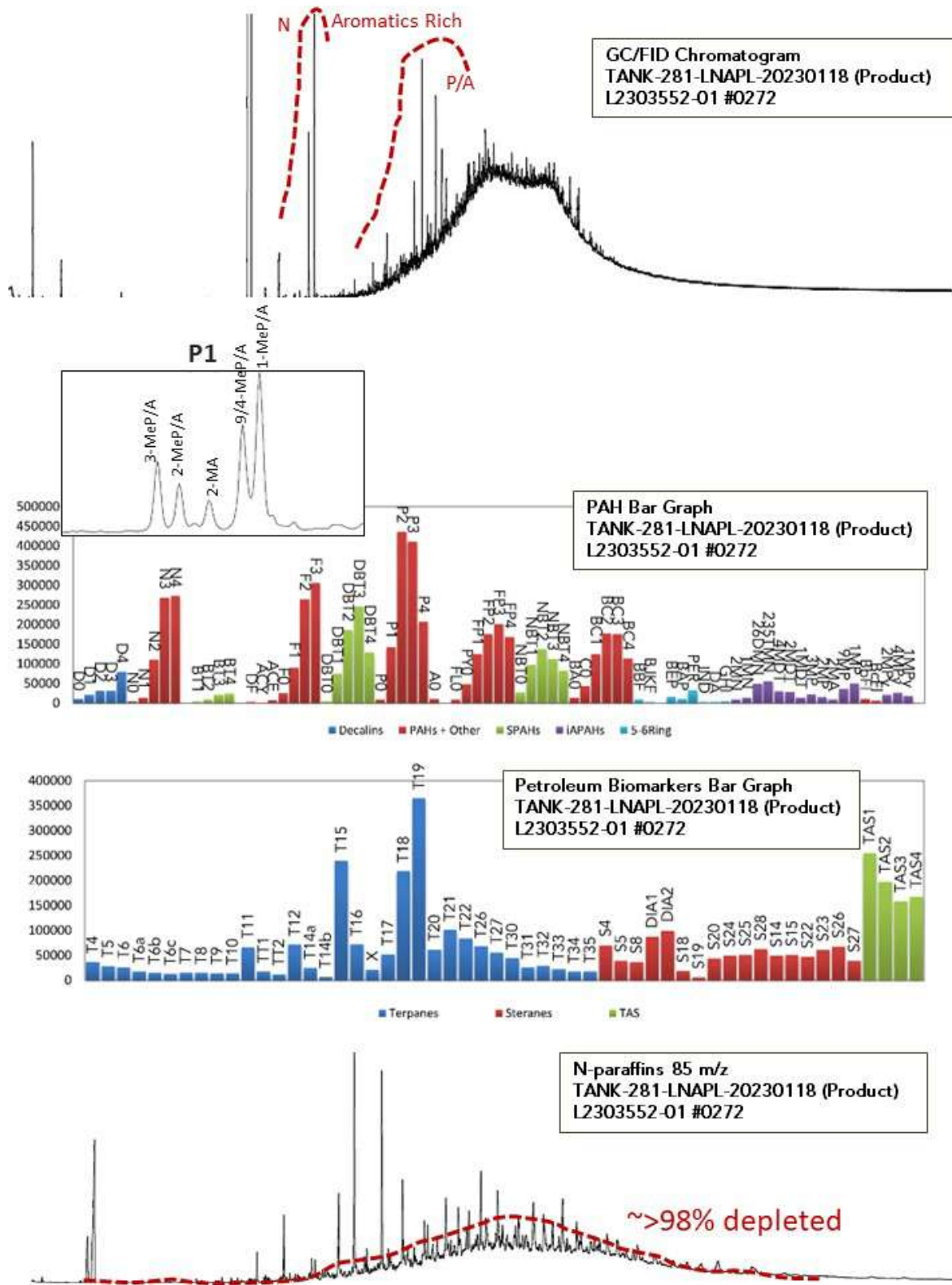


Figure 1. Fingerprint Mosaics™ for product samples.

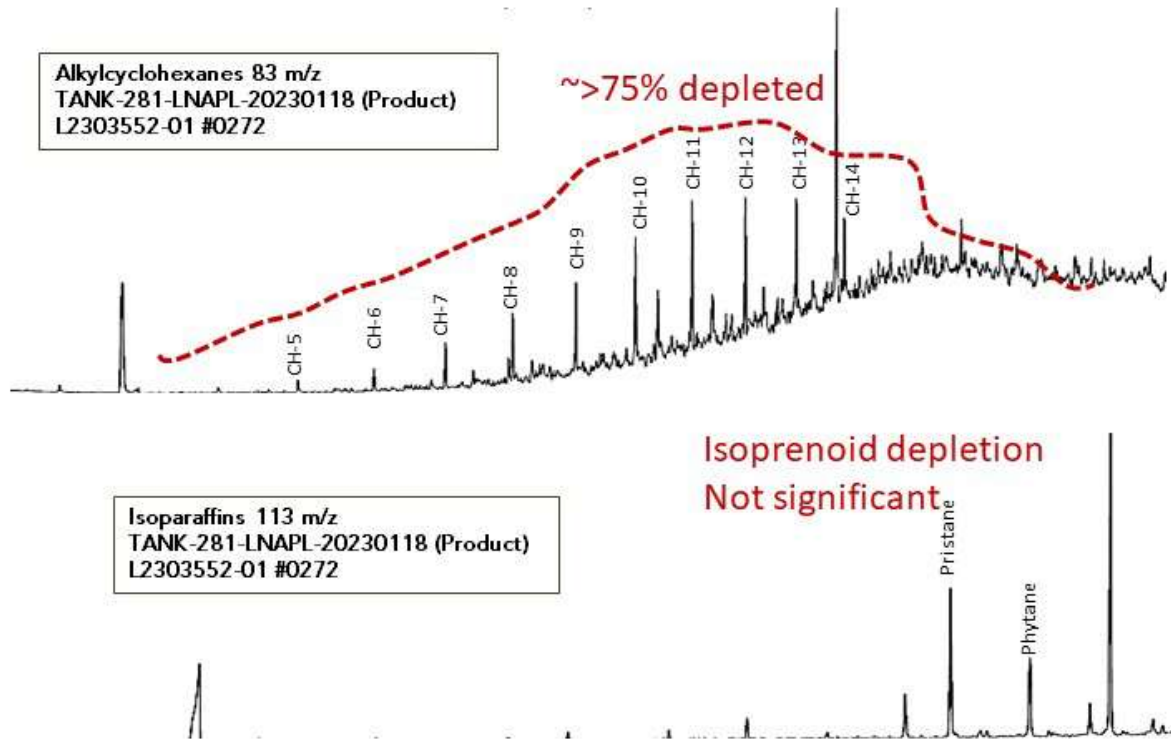


Figure 2. Fingerprint Mosaics™ for product samples.